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Stauffer-Victor Announce Merger

Stock Exchange Included in Plans

NEW YORK—The directors of Stauffer Chemical Co. and Victor Chemical Works reached an agreement in principle for a merger of the two companies subject to stockholder approval, announced August Kochs, chairman, and Rothe Weigel, president, of Victor, and by Christian de Guigne, chairman, and Hans Stauffer, president, of Stauffer.

The merger proposal provides for an exchange of one share of Stauffer common for each share of Victor common. This will involve issuance by Stauffer of approximately 1,700,000 common shares in addition to the 7,242,670 Stauffer shares now outstanding. It is contemplated that the Victor 3½% \$100 par value preferred shares will become 3½% \$100 par value preferred shares of Stauffer.

As soon as the necessary formalities are completed, a plan of merger is to be submitted to the stockholders of both companies.

The consolidation will unite two pioneer companies. Victor's operations in phosphates and allied products will complement Stauffer's position in basic industrial and agricultural chemicals. Sales of the combined enterprise in 1959 are expected to exceed \$225 million.

The Stauffer board will be expanded by the addition of three members of the present Victor directorate. The Victor organization will remain intact, with headquarters in Chicago. Victor operations will be carried on as the "Victor Chemical Division" of the Stauffer Chemical Co. with Rothe Weigel, now president of the Victor Chemical Works, as the president and general manager of the division.

Spruce Beetle Target of Utah Spray Program

VERNAL, UTAH—Work crews are in the process of spraying 10,000 trees in the western reaches of the Ashley National Forest as part of an all-out war on the Engelmann spruce beetle.

Infested trees are treated individually with an ethylene dibromide product. Some 6,000 trees were sprayed before winter halted operations last year.

First notice of the spruce beetles came last summer and control measures were immediately inaugurated. These included logging as well as spraying, and some 4,500 trees were felled and hauled to lumber camps.

The Engelmann spruce is a valuable timber tree and also is considered—
(Turn to **BEETLE**, page 21)

USDA Calls St. Lawrence Seaway New 'Challenge'

WASHINGTON—The extension of U.S. "ocean" ports as far inland as Duluth, Minn., by the opening of the St. Lawrence Seaway offers a new challenge to the vigilance of plant, livestock and meat regulatory workers of the U.S. Department of Agriculture.

Discovery by plant quarantine inspectors of khapra beetles, destructive pests of stored grain, aboard a freighter putting in at Cleveland, Ohio, is an example of this new problem in combatting foreign plant and animal pests of U.S. agriculture, officials of USDA's Agricultural Research Service report. The ship was fumigated before any cargo was unloaded.

The tiny khapra beetle, a native of the Far East, has invaded the U.S.

only in the Southwest. An intensive Federal-State fumigation effort is in progress to eradicate it there. The Cleveland finding placed the pest unpleasantly close to the midwestern Grain Belt.

U.S. Customs inspectors and ARS plant and animal quarantine inspectors work together at all ports of entry to see that incoming ships bring no foreign insects, diseases or other pests harmful to U.S. crops and livestock. Canadian and U.S. regulatory agencies cooperate closely in mutual protection against dissemination of foreign diseases and pests.

ARS inspectors also examine certain exported plants, plant products, livestock and animal by-products such as hides, meat scraps and tallow for the presence of pests and diseases so that they may meet entry requirements of the countries of destination. Demand for such export certification is expected to greatly increase with single-loading waterfreight shipment available to the Grain Belt and to midwestern and western livestock ranges.

The need for an understanding of these regulatory services becomes more critical as a result of
(Turn to **SEAWAY**, page 8)

Pacific Northwest Group Hears Reports on Fertility, Crop Response to Plant Food

TACOMA, WASH. — The Pacific Northwest Fertilizer Conference held its tenth annual convention at the Hotel Winthrop, Tacoma, July 7-9. The meeting, sponsored jointly by the State Agricultural institutions of Idaho, Oregon and Washington and the soil improvement committee of the Pacific Northwest Plant Food Assn., attracted fertilizer industry people from a wide area of the northwestern states, as well as from other parts of the country.

Speakers at the three-day meeting represented the U.S. Department of Agriculture, Washington State College, the National Plant Food Institute and the industry. Subjects in-

cluded fertilization of turfgrass, pastures, wheat and other crops, and reports on soil fertility in the Northwest.

In his talk on the present status of forest fertility research, S. P. Gesel, college of forestry, University of Washington, Seattle, said that in the ten years since forest tree nutrition research began in the Northwest, its value has been demonstrated. "The fact that we have rather large areas of forest land deficient in some element, particularly nitrogen, has been shown," he said.

"In fact, some evidence indicates that practically all areas of forest land are able to produce more after elemental application, even the most
(Turn to **REPORT**, page 17)

History of Fire Ant in Arkansas Traced by University Researcher

By DR. J. L. LANCASTER, JR.
Associate Entomologist
University of Arkansas

The fire ant was known to exist in a nursery in El Dorado in 1950. Apparently it had been brought in on balled nursery stock from its point of introduction in Mobile, Ala. This infestation was under the close observation of the Arkansas State Plant Board. Inspectors required continuous mound treatment by the nursery operator in an effort to prevent spread.

By early 1957 it was evident that escape had occurred and that a rel-

EDITOR'S NOTE—The accompanying article, reprinted completely here, appeared in the May-June issue of the Arkansas Farm Research magazine.

atively large area was infested. It was also evident that if the ant was to be contained or eliminated immediate steps were necessary.

With local, state, and federal action it was decided to treat something over 11,000 acres in 1957 with granular heptachlor at a dosage rate of
(Turn to **FIRE ANT**, page 21)

Agrico Lets Contract For Ohio Acid Plant

NEW YORK—Announcement was made recently by C. M. Powell, president of the American Agricultural Chemical Co., of the letting of a contract for construction of a three-quarter million dollar contact acid plant at Cairo, Ohio. The plant will be capable of producing various concentrations of sulfuric acid.

Construction of the plant, the second of this type for AAC, is scheduled to begin in early August. Completion is expected in March, 1960.

The company's sulfuric acid production capacity will be increased approximately 10% by the new plant, according to Mr. Powell. AAC operates a contact acid plant at Bay City, Mich., and produces sulfuric acid by the chamber process at 18 other plant locations.

Acid produced at the new plant will be used primarily in AAC's own production of 18% NORMAL Superphosphate and AGRICO and AA fertilizers.

U.S. Pest Control Team Visits Russia

WASHINGTON—The U.S. Department of Agriculture has announced the departure July 8, of an agricultural observation team for the Soviet Union under the U.S. government's scientific and technical exchange agreement with the USSR.

The group is the seventh agricultural team to go to the Soviet Union since the agreement became effective last year, and is the first team to leave this summer. Its purpose will be to gather technical information regarding biological control of pests.

The U.S.-Russian agreement provides for the visit of a total of nine U.S. agricultural technical groups to the Soviet Union in 1958 and 1959, and for a similar number of Russian teams to visit the U.S. in the same period. Six Russian teams came to this country last summer, and six U.S. groups went to the Soviet Union.

The U.S. pest control observation group, composed of scientists of Iowa State University, the University of California, and Purdue University, and of the USDA Agricultural Research Service, will visit scientific institutions and agricultural areas in the USSR. Their travels will take them to Moscow, Leningrad, Kiev, Dnepropetrovsk, Krasnodar, Platigorsk, Saratov, Baku, Tashkent, Alma Ata and Omsk.

Members of the team are:
Lev F. Curl, plant pest control div.
(Turn to **RUSSIA**, page 17)

Number of Ticks Found on Dogs Following Fire Ant Treatment

Date of check	Area treated in 1957		Area treated in 1958		Untreated area	
	Dogs	Ticks	Dogs	Ticks	Dogs	Ticks
April 17, 1958	20	2	11	1	21	338
April 17, 1959	24	5	17	7	18	387



AT RUTGERS FIELD DAY—Crops-Livestock Field Day at Rutgers University attracted many men from industry and business as well as from New Jersey farms. Looking at results of a forage persistence test are, left to right, Dwight M. Babbitt of Flemington, Hunterdon County National Bank; Francis A. Raymaley, Alloway, American Cyanamid Co.; Nick Ferrant, Yardville, GLF, and Dr. Henry W. Indyk, farm crops specialist at Rutgers.

Put Fertilizer on Alfalfa with a Shovel, Not Teaspoon, N.J. Growers Advised

NEW BRUNSWICK—"You've got to put fertilizer on with a shovel and not a teaspoon" to grow alfalfa, and the key to alfalfa success is potash.

Dr. John L. Gerwig stood by a flourishing stand of alfalfa in its seventh year as he called for a generous hand with fertilizer during the recent Crops-Livestock Field Day at Rutgers University's Agricultural Experiment Station.

Dr. Gerwig, extension crops specialist at Rutgers, came up with the statement that New Jersey alfalfa needs at least 200 pounds of K₂O an acre to maintain a stand and harvest top yields.

He had the backing of Dr. Henry W. Indyk, also an extension crops specialist, who said during a question-answer period that "if you can't afford fertilizer you can't afford alfalfa."

The alfalfa comments were made during a stop at check plots of Atlantic alfalfa, the strain favored and most widely grown in New Jersey. The check plot with no fertilizer at all yielded a little more than a ton and a half in a total of three harvests a year from 1952 to 1958. Last year the yield dropped to almost nothing—.06 ton an acre.

Top yield of 5.17 tons to the acre last year came from an 0-100-300 mixture, followed by 5 tons from 0-100-400.

Rutgers orchardgrass research is aimed at finding a later maturing variety that won't come along as fast as the ones now planted, according to Dr. Warren R. Battle, farm crops researcher. Worthy of further testing, on the basis of a first season performance, he said, is Hercules, that was the top yielder with a season yield of 4.34 tons to the acre. New York Synthetic D was second and Aurora, third.

Dr. William F. Megitt, crops researcher, showed two aspects of his weed control studies with Simazin. Pre-emergence weed control is proving best, he said, because weeds 2 inches tall or less competing with corn can do a considerable amount of damage.

In trials of band applications of Simazin 12 and 24 inches wide, the narrower application has been found inadequate. Simazin has been doing an effective job of controlling grasses and broadleaf weeds.

High nitrogen-fertilized forages increase the protein and energy available to the animal, but fiber content of the high-N roughage is less digestible, according to Frank Wright, ex-

tension dairy specialist. He described digestibility trials in which sheep and cattle as well as an artificial rumen have been used.

Midland Bermuda grass is being tested for possible use as a forage crop in South Jersey. Dr. Robert W. Duell said during the tour of his crops nursery.

About 100 farmers, fieldmen and others attended the field day, described as one of the most successful in a series, by Dr. M. A. Sprague, chairman of the Farm Crops Department. The field day at the station is held in alternate years. Next year the demonstrations, coupled with a machinery show, will be held at Rutgers' Dairy Research Farm, Beermerville.

Palm Springs Is Site Of Aircraft Group Meeting

PALM SPRINGS, CAL.—The 10th annual convention of the Agricultural Aircraft Assn. will be held Jan. 14-16, 1960 at the El Mirador Hotel in Palm Springs, announced Wanda Branstetter, the executive secretary of the group.

"Safer and more scientific methods of protecting California's agricultural crop and forest lands through wider use of airplanes will be the keynote of this annual meeting," said Mrs. Branstetter.

Led by James K. Vedder of Imperial, the president of the AAA, the discussions will feature the need for a better understanding by the public of the operations of aerial crop dusters, and the problems of industry improvements.

This annual affair brings representatives of the aviation, farm, chemical, and allied industries from all parts of the U.S. More than 400 are expected to attend.

This is the first time that the group has met outside the San Joaquin Valley, and they are looking forward to increased attendance from those people who will combine the affair with their winter vacation.

Texaco Announces Two Petrochemical Appointments

NEW YORK — Texaco, Inc., announced the appointment of Allan F. Dow as petrochemical sales supervisor for the midwest, and Charles B. Fischer as sales representative in Indiana, Michigan, Ohio and Kentucky.

Mr. Dow, who joined Texaco in 1949, will headquarter in the McCormick Building in Chicago.

Mr. Fischer also joined Texaco in 1949 and will headquarter at the same office.

CORN CROP FORECAST AT 4.25 BILLION

WASHINGTON—U.S. Department of Agriculture is now forecasting a corn crop at approximately 4.25 billion bushels for this year. Corn stocks on farms are estimated at 1.1 billion bushels; in the North Central States stocks are said to be better than 980 million. Corn disappearance during the April-July quarter is now estimated at more than 700 million bushels.

Soybean acreage is now reflecting its first decline, according to USDA, with an estimated planted acreage of 22.9 million. Reductions are reflected primarily in Minnesota and Iowa. Soybean stocks on farms are said to be, as of July 1, 35.4 million bushels, and are concentrated in the North Central area. April-July disappearance of beans is now reported as 89.2 million, a reduction from last year. This week officials of the crusher industry said that for the June crush it is probable that use of beans by crushers will be off by about 10% from the previous month due to close-downs in marginal crushing plants.

Minnesota Agronomists Report on Weed Killers

ROSEMOUNT, MINN.—Atrazine, another new chemical weed killer, could be a big help in controlling weeds in Minnesota corn fields, according to the University of Minnesota's Rosemount Experiment Station.

Richard Behrens, agronomist, told Minnesota Field Day visitors recently that when applied at 2 to 4 lb. of actual chemical per acre, Atrazine gave good control of annual grass and broadleaved weeds.

Atrazine can be used as a post-emergence treatment, after the corn comes up. This makes it possible to delay spraying until the farmer knows whether weeds will be serious enough to warrant spraying.

Mr. Behrens said other weed research at Rosemount shows that:

- It makes little difference with most anti-weed chemicals whether they are applied as sprays or in granular form.

- A mixture called Randox-T (Randox with a special additive) seems to control both annual grass and broadleaved weeds in corn without injuring the crop.

- Winter carryover is a problem with both Atrazine and Simazin. Where either chemical is used, enough may stay in the soil to severely injure small grains, especially oats, if planted in the same field the following spring. So the best rule is to use these chemicals only where small grains don't follow corn.

- A chemical called Amoben looks promising as a pre-emergence spray on soybeans. Although it isn't on the market yet, Amoben at 2-4 lb. per acre controlled both annual grasses and broadleaved weeds in Rosemount trials.

Georgia Peach Growers Cited for Pest Control

MACON, GA.—A few peaches had been shipped out of the south Georgia areas by mid-May, but fast shipping started May 25 on Maygold and Duke of Georgia varieties.

These peaches will be of good quality, caused mostly by the fact that the growers have been following a stringent practice of insect and disease control, by spraying on chemicals.

A. W. Wilson, with the American National Growers Assn., is one of those who is emphatic in praise of the Georgia growers for their work in spraying. He said, "I have never seen the growers do a better job in disease and insect control than they have done this year."

Japan Contracts For Potash Mined In Saskatchewan

TORONTO—Contracts have been completed between Japan and the Potash Company of America for bulk sales of potash mined in Saskatchewan. First shipments were scheduled to start across the Pacific in July.

Potash Company of America, the first Canadian producer, is also eyeing new export markets in other Far Eastern countries and Australia, a spokesman said. Recently the first shipments were made into the U.S.

It was reported that the company has orders from Japan for sizeable shipments of muriate of potash for delivery from July through December. Prospects for future business next year look good, the spokesman said.

Approval of the 1959 purchase agreement by the Japanese government and the private buyers means that Canada may be one of the major sources of supply for the heavy annual Japanese requirements, it was said. Japan, which imports nearly all its potash, has been buying from other Asian countries, and sometimes from European sources. This year, Japan signed a contract with Russia for big potash supplies from Siberia.

Substantial shipments were made to eastern Canada this spring, which replaced former imports from the U.S. Shipments have also been made to British Columbia for the first time.

IMC to Add Equipment To Western Potash Mine

CARLSBAD, N.M.—Officials of International Minerals & Chemical Corp. have announced that more than a million dollars worth of new mining equipment will be put into operation during the coming year at the potash mine here.

The new equipment, most of it designed to permit efficient operation in lower height ore beds than present equipment allows, is being installed to serve the double purpose of helping the company keep pace with current demand for potash products and prepare for long-term continued operation of the mine.



Jean Leclerc

ELECTED PRESIDENT—Jean Leclerc, chief chemist of the Montreal soils laboratory of Canadian Industries Ltd., has been elected president of Quebec Fertilizers Inc. Other officers elected at the recent annual conference of the organization were: executive director—P. E. Bastien, Canada Packers Ltd.; secretary-treasurer—Lorimer Whitworth, International Fertilizers; chairman agronomic committee—Guy Gubbay, William Houde Ltd.; chairman advertising committee—Arthur O'Donoghue, Cyanamid of Canada Ltd.

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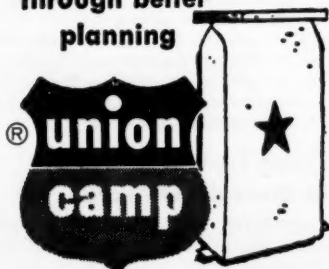
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INSECT, PLANT DISEASE NOTES

Orchard Mites Listed As Number One Pest

VINCENNES, IND.—The number one problem confronting the most growers, both peach and apple, is that of the build-up of orchard mites. The two-spotted spider mite is of the most importance at the present time. Very heavy build-ups in the lower centers of apple trees and generally over peach trees are being reported to us daily. Where control measures have slackened, the European red mite is still a definite threat. Growers are urged to critically examine their apples and peaches with regard to these pests.

Second-brood codling moth worm activity should increase this week. They are, at present, entering the fruit in this area.

Second brood Oriental fruit moth adults are still in flight. Third-brood hatch is now in progress.—Merrill L. Cleveland.



Corn Rootworm Damages Parts of Iowa Crop

AMES, IOWA—The first of perhaps many reports of Southern corn rootworms and damage came from Union County. The corn was 15-18 inches tall, had few roots and showed evidence of feeding in the crowns above the roots. There were "suckers" growing from the roots. The larvae of the Southern corn rootworm were present in the tunnels. These larvae were nearly full grown.

Northern corn rootworm larvae—also nearly full-grown ($\frac{1}{2}$ inch long) were sent in from Jasper County. The green or tan adult beetles will appear about July 15-20 to feed on corn silks and pollen.

Wireworms were reported in Clarke County. They range from $\frac{1}{2}$ to more than 1 inch long, average 8 per hill, are present in corn fields with a wide variety of previous crop histories—soybeans, sweet clover, alfalfa and corn. Up to 60% loss in infested fields. The only fields with no or little loss are those treated this spring with soil insecticides.

Corn leaf aphids were seen in grain sorghum and corn last week. In grain sorghum there are red areas on stems and leaves, and many small green aphids with honeydew on the whorl leaves. There are no such symptoms on corn.

Reports from cooperators in all parts of Iowa indicate that corn borer populations are low everywhere. In northern Iowa, corn from 55 to 70 inches tall ranged from 8 to 20% infested with 8 to 70 borers per 100 plants. Larvae ranged 33% I, 30% II, 10% III and 27% IV instar.—Harold Gunderson.

Boll Weevils Increase In Tennessee Fields

KNOXVILLE, TENN.—Cotton continues to put on vegetative growth and is fruiting well. Some of the water damaged fields appear to be growing off slowly. Insect infestations vary widely from one section of the cotton growing area to the other.

Boll weevils are definitely on the increase in the southern part of West Tennessee. Counts averaged 18% this week (July 13) with more general infestations than there were last year. Conditions are ideal for build-ups and

the first generation of weevils should be emerging from the punctured squares by the end of next week.

Boll worm infestations are on the increase. Heavier infestations were found in the northwestern part of the state. Many fields are now in the need of control. An average of two worms per one hundred terminals was found in the fields that were infested.

Flea hoppers, tarnished and rapid plant bugs are being found all over the area and are causing some light damage to the small squares.—R. P. Mullett.

Two New Insects in Utah's Crops, Shrubs

LOGAN, UTAH—Oyster shell scale and European elm scale, two insects new to Utah, have been damaging crops and shrubbery in some Utah localities after hatching from eggs.

Dr. George P. Knowlton, Utah State University extension entomologist, says control is most effective by spraying immediately after the eggs hatch.

The entomologist warned that delay of spraying complicates control measures.

Pea Aphids Increasing, Wisconsin Report Says

MADISON, WIS.—Pea aphid populations have raised markedly in late peas. One location at Arlington, with a count of 15 aphids per sweep last week, averaged 45 per sweep on July

6; and a Walworth field averaged 27 on July 3. Highest counts have generally been in the northeast section thus far this season. Treatments outside this area have been minimal to date.

Counts in alfalfa in southeastern, south central and central Wisconsin counties ranged from less than 1 up to 4 potato leafhoppers per sweep. Grasshopper nymphs averaged less than one per sweep except in central Wisconsin where counts were spotty but higher, with 45 nymphs per square yard for one field being the highest count. Grasshopper populations appeared to be lower after the rains, and the variance may reflect the variance in nymphal development. The plant bug populations in these counties generally averaged less than one per sweep for each of these species (tarnished, rapid, and alfalfa plant bugs). Most abundant were adult meadow spittlebugs, and counts of 10 to 25 per sweep were common in southern counties.

European corn borer moths have recently been caught in the traps in Fond du Lac, Dodge, Green Lake, and Washington counties, but catches in the southern and western traps are minimal. Borers are chiefly in the 3rd-4th instar in the southern tier of counties, but some 5th instar borers were found on 72" (extended leaf height) corn in Rock County on July 7. In advanced fields, counts generally show that 3% or less of the plants have leaf-feeding. No unhatched egg masses

are reported from the southern counties or Rochelle, Illinois, and the hatched egg masses averaged $1\frac{1}{2}$ per 25 plants for Walworth, Racine, and Kenosha counties. According to day-degrees and providing near normal temperatures occur, corn borers should be entering the pupal stage about July 20, in southern counties.

Cutworm reports have subsided, but about half of the counties (mostly southern) reported that nearly 3,000 acres of corn had to be replanted (some twice), due to cutworm losses. This may be an underestimate, as possibly is the 4,600 acres reported to have been treated for cutworms. Walworth and Vernon County estimates indicate that in 60% and 50%, respectively, of the fields plant populations were noticeably reduced.

These are the highest estimates, but several other counties have also reported a significant percentage of the acreage where plant populations were reduced. It appears that the black cutworm may be the prime offender, but other species also are involved.



Grasshoppers Hit After Dry Spell in Missouri

COLUMBIA, MO.—Dry weather in several sections of Missouri has presented good conditions for grasshoppers. Pastures are beginning to look like they do in August and grasshoppers are moving out of grassy areas into crops.

Blister beetles are in scattered infestations in soybeans and alfalfa.

In many fields of sorghum, nearly all the plants have corn leaf aphids feeding in the whorls. This is one of those things that looks worse than it actually is, and only in unusually severe cases should controls be used.

Damage is worst in the drier sections of the state where the sorghum is not growing rapidly. We are beginning to find some webworms on alfalfa in several of the west central and southwestern counties.

There are more grape colaspis adults in corn and soybeans over the state than we have ever seen. These are the small, pale brown or tan beetles about $\frac{1}{4}$ inch long that are feeding on silks of corn, and soybean foliage.

Although many people have been noticing these insects, we have not yet seen any fields of beans or corn which we thought should be sprayed to control them. Spraying would be justified, however, if newly set bean pods are being eaten, or if corn silks are being chewed back sufficiently to seriously interfere with pollination.

Mimosa webworms are beginning to show up on both mimosa and locust trees.—Stirling Kyd.

Rice Weevil Reported First Time in California

SACRAMENTO—The rice water weevil has been found for the first time in California by entomologists at the Rice Experiment Station at Biggs, Cal.

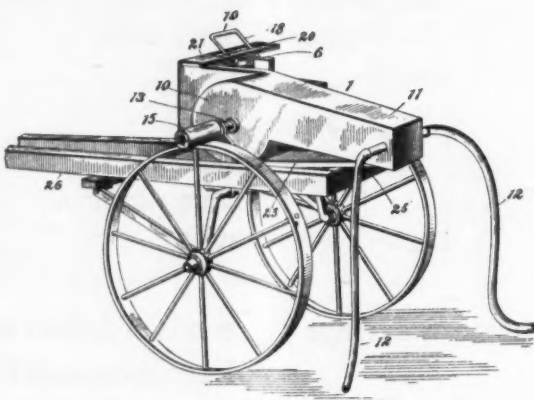
W. Harry Lange and Albert A. Grigarick, station entomologists, said they did not yet know how widespread the infestation was or how much damage the weevil can do.

They noted that the larvae and adults damage rice plants. The larvae feed on the roots, pruning them close to the crown while the adults feed on leaves, leaving slit-like scars.

Peach Tree Pests Hit In Georgia Orchards

ATHENS, GA.—Insects attacking peach fruit are still under good control here. The quality and size of peaches in this area are still generally good. Second-generation larvae of plum curculio began to show up in

Saga of Insect Pest Control



AFTER ALL THE ATTEMPTS of man to control and destroy insects, the wonder is that there are so many bugs left around to eat up crops and annoy people. Back in 1900, two inventors, Benjamin H. Passmore and Robert B. May, of Stockdale, Texas, patented an improved insect-destroyer described in the patent papers as being "simple and efficient" and designed to "discharge the fumes of sulfur and other insecticides upon cotton and other plants to destroy the cotton-weevil, caterpillar, worms and various other forms of insect life."

Like many inventions of this type, the brainchild of Messrs. Passmore and May utilized a then-common kerosene lamp to supply heat necessary for burning sulfur or other insecticide. The pesticidal product was contained in a hopper and was discharged through a spout or tube which was provided with a slide for regulating the feed.

The material was evacuated from the tubes through pressure generated by a fan which in turn was revolved from the movement of the wheels. The fan was to draw fumes from the chamber into the drum and thence into the flexible tubes.

Somehow, cotton pests have survived the application of toxicants through this type of machine, and now, some 60 years later, the bugs seem hale and hearty after the rigors of primitive control methods.

harvested peaches from Dooly County during the first week in July. A good many wormy peaches of both the Southland and Sullivan's Elberta have been reported.

Peach tree borer infestation is heavy in many orchards in this area and considerable damage to peach trees has been caused by this insect.

The first application of a trunk spray for the control of this insect should be applied in this area by August 1. Fumigant-type treatment in October will give better peach tree borer control than trunk sprays in this area.

Tomato hornworms were defoliating tomato plants and attacking tomato fruits at Ft. Valley.

Square counts were made in 39 middle and south Georgia cotton fields with a range from 2 to 75% punctured squares, averaging 25% punctured squares from boll weevil. In Pulaski, Colquitt and Lee counties, the percentage of punctured squares was high.

Pulaski's range was from 37 to 68% punctured; Colquitt from 12% to 69% and Lee, from 58% to 75%.—W. C. Johnson.

Various Agricultural Pests Plague New Jersey

NEW BRUNSWICK, N.J.—Second generation moths of *Sparganothis fruitworm* have been in flight for over 10 days and eggs are now beginning to hatch. Leafhoppers, girdler moths and tipworms are also now active on bogs.

Green peach aphid populations persist in most fields. It is still early for borer sprays or dusts—second brood. A few European corn borer moths have been trapped by New Jersey Department of Agriculture surveyors since June 25 but levels of population are yet low. Pupae and late instar larvae predominate in the southern counties on infested corn, eggplant, etc. Early dug potatoes should need no second brood sprays in central New Jersey. However, hot weather may advance emergence of moths.

New Jersey Department of Agriculture earworm egg surveys showed 2 eggs on 700 silks in central New Jersey—very low. Since June 25, a few moths have appeared in slightly increasing numbers.



Spotted Alfalfa Aphid, Grasshoppers Reported

FT. COLLINS, COLO.—The spotted alfalfa aphid, first reported in western Colorado several weeks ago, has moved into Garfield County. Numbers there are still low, however, the Colorado Insect Detection Committee says. There is still no infestation in northeastern Colorado.

The grasshopper picture in Colorado continues to follow a spotty pattern and farmers are taking control measures in most affected areas.

Alfalfa weevil counts in Weld, Larimer, Adams, Huerfano and Otero counties are down from previous levels.

Latest reports on the pea aphid show high numbers in Mesa County alfalfa fields, ranging from 4,000 to 10,000 per 100 sweeps. The Garfield County count has been running from 200 to 2,000 per 100 sweeps. In Weld, Larimer, Adams and Delta counties, numbers are relatively low.

The beet leaf hopper count in Otero County has been running from 50 to 100 per 100 sweeps on sugar beet fields.

In the Montrose area, movement of the Mexican bean beetle reached a high during the last week. In Weld and Larimer counties, numerous bean beetle egg masses have

been reported but no larvae have been found.

Larimer County has also reported the appearance of the alfalfa caterpillar.

Although still in relatively low numbers, the six-spotted leafhopper is appearing in light trap samples in some sections of the state. This is the insect which carries the disease, aster yellows.

Small numbers of corn earworm moths have been found in light traps in the New Liberty area of Mesa County and in the Rocky Ford, Springfield and Greeley areas in eastern Colorado. In those same areas, considerable damage is being reported on corn from the larval stage of this insect. If populations continue high on corn, an infestation may also develop later in the season on tomato fields in these regions, the committee warned.

Grasshopper Counts Low in Kansas Now

MANHATTAN, KANSAS—Grasshopper counts in eastern Kansas are too low to require control measures. Counts were less than 3 per square yard last week in Riley, Wabaunsee, Pottawatomie, Clay, Washington and Marshall counties. Control is still necessary in several north central Kansas counties to prevent further damage to corn, alfalfa, trees and gardens. Some reports of a late hatch of grasshoppers in western Kansas indicate controls to protect fall seeded crops. Application at the heavier rates will be needed with hot weather and drying vegetation.

Only a few fields of early corn in northeast and north central Kansas showed infestation with European corn borers last week. The late planted corn will be favorable for second

generation corn borers next month. Corn leaf aphids in sorghum are common in most parts of the state. Counts in northeast Kansas vary from 0 to 150 per plant. Insecticides are not of value on the plants before heading stage.

Webworm counts were up to 12 per 10 sweeps in alfalfa fields in Riley and Wabaunsee counties. Counts in Pottawatomie, Clay, Washington and Marshall counties were much lower. Webbing was evident on less than 5% of the plants in the heaviest infested fields in Riley and Wabaunsee counties.

Adult moths of peach tree borers are emerging in south central Kansas so trunk sprays should be applied.—Leroy Peters and Dell E. Gates.

Croplife Want Ads...
Get Results

FOLIAR APPLICATION...

Today's outstanding Profit Opportunity for you!

**When you sell Grace Agricultural Grade Crystal Urea
A Fast-Growing, Profitable Market Opens For You**

The use of Urea for foliar application on both vegetables and citrus is a fast-growing trend today. That's because this type of application gives the farmer a combination of top quality and maximum yields.

Grace Agricultural Grade Crystal Urea has several advantages. Its low biuret content

(less than 0.2%) makes it safe; it is especially formulated for foliar application, and contains 46% nitrogen; it won't clog or damage spray equipment; and it is completely water soluble. Sell Grace Agricultural Grade Crystal Urea... and take advantage of these new profit opportunities. Here's how Grace helps you:

1. NATIONAL ADVERTISING pre-sells for you! Grace advertises its Agricultural Grade Crystal Urea to both vegetable and fruit growers nationally, with consistent, full-page, color advertisements. This pre-selling makes your job easier... more profitable.

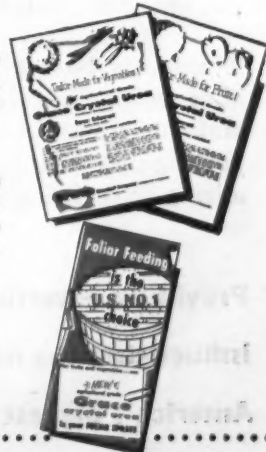
2. SELLING AIDS ARE YOURS—FREE! Effective, tested selling aids like this informative booklet are yours free, for distribution to your customers. Grace gives you what it takes to do the job right... to establish your business as headquarters for foliar sprays.

WRITE FOR DETAILS

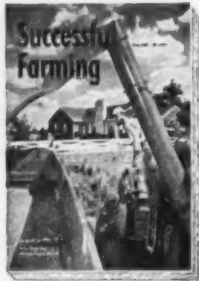


Grace Chemical Company

A DIVISION OF W. R. GRACE & CO.
MEMPHIS, TENN.



ANOTHER PUBLISHING ADVANCE FROM MEREDITH OF



Successful Farming State and Regional Editions

NOW—for the first time—farm magazine quality and selectivity on the state level

From Meredith of Des Moines and America's newest, most modern publishing plant comes **new magazine flexibility** . . . new advertising and marketing opportunities to help national, regional and state advertisers make more sales to farm families in many of the richest agricultural states in the nation.

Effective with the January, 1960, issue, Successful Farming will be available to advertisers in 20 state and regional editions, with circulation deliveries ranging from 67,000 to 600,000—to 1,300,000 for the regular edition.

For the first time, localized advertising can have all of the important magazine values: editorial excellence and quality visual presentation . . . fine reproduction . . . full color . . . long life . . . augmented prestige . . . audience selectivity . . . efficient market penetration.

This means **better, more efficient selling** for the national or regional advertiser introducing new products state by state, or intensifying sales efforts in specific areas . . . supporting distributors on state-wide promotions . . . personalizing advertising by using dealer listings. It also makes

quality magazine advertising available to manufacturers with limited distribution.

With 57 years of service, helping farm families earn more money, increase production and profits, live better in more comfortable farm homes, Successful Farming enjoys unusual prestige and influence—opens doors, heightens receptivity to advertising, makes sales. Advertisers now can have this important sponsorship **and at the same time** tailor their campaigns to solve local marketing problems.

Successful Farming farm families are among the best customers in the nation. For the past decade, they have averaged around \$10,000 a year in farm cash income; \$12,120 in 1958. Their farms average 336 acres with 11 permanent buildings. Throughout the great Central Valley—the 15 agricultural Heart states—SF's circulation parallels the distribution of prosperous, business farms. The greater the concentration of good farms . . . the more SF subscribers . . . the deeper SF's penetration.

No medium offers a better market—nationally, regionally, locally.

Providing advertisers with greater flexibility, a better, more effective medium for

influencing the nation's best farm families, is another publishing advance from Meredith of Des Moines—

America's biggest publisher of ideas for today's living and tomorrow's plans.

DES MOINES...

Farming Announces 20 Editions

Select the combination that meets your specific needs from these twenty different editions of Successful Farming:

Edition	States	Circulation*	B & W Page Rate	Edition	States	Circulation*	B & W Page Rate
1	Iowa, Illinois, Indiana, Nebraska, Minnesota, Wisconsin	608,297	\$3,955	13	North Dakota, South Dakota, Nebraska	149,871	\$1,350
2	Illinois, Indiana	218,956	\$1,860	14	Illinois, Indiana, Ohio	320,412	\$2,565
3	Iowa	128,670	\$1,160	15	Iowa, Minnesota, North Dakota, South Dakota, Nebraska	395,289	\$3,065
4	Minnesota	116,748	\$1,050	16	Iowa, Illinois, Indiana, Wisconsin, Minnesota	540,651	\$3,785
5	Nebraska	67,646	\$ 625	17	Illinois, Indiana, Ohio, Wisconsin, Michigan	464,985	\$3,370
6	North Dakota, South Dakota	82,225	\$ 760	18	North Dakota, South Dakota, Nebraska, Kansas	217,241	\$1,850
7	Wisconsin	76,277	\$ 705	19	Iowa, Nebraska, Kansas, Missouri	339,268	\$2,715
8	Iowa, Illinois, Indiana	347,626	\$2,780	20	Middle Atlantic, New England	138,385	\$1,245
9	Iowa, Minnesota	245,418	\$2,085				
10	Iowa, Nebraska	196,316	\$1,720				
11	Minnesota, Wisconsin	193,025	\$1,690				
12	Minnesota, North Dakota, South Dakota	198,973	\$1,740				

*A. B. C., 12/31/58

For details call any Successful Farming office: Des Moines, Chicago, New York, Philadelphia, Cleveland, Detroit, St. Louis, Atlanta, Boston, Minneapolis, Los Angeles, San Francisco.



STARTS CONSTRUCTION—The Stepan Chemical Co., Chicago, has started construction on a new \$1,000,000 administration and research center to be completed next January, announced Alfred C. Stepan, Jr., president and founder of the company. The new building on a 15 acre tract at Research Park facing Edens Expressway in Northfield, Ill., a suburb of Chicago, will contain the executive offices of the company, now located at 427 W. Randolph St., Chicago. It will also provide modern, fully equipped laboratories and make possible the consolidation of the firm's research and development staffs which are now located in the company's various manufacturing plants.

Chemical Sales Office Opens in Spokane

SPOKANE, WASH.—A resident sales office has been opened here to market coal chemical products in Washington, Oregon and northern Idaho, with A. J. Kamel in charge. He will handle the sale of products from Columbia-Geneva Steel's Geneva Works near Provo, Utah, which will include ammonium sulfate, ammonium nitrate, nitric acid and anhydrous ammonia, as well as a number of industrial chemicals.

Thomas M. Ware Named IMC Chief Executive

SKOKIE, ILL.—Thomas M. Ware, president of International Minerals & Chemical Corp., has been made chief executive officer of the corporation by the board of directors. He has been with IMC for 12 years, and was chief engineer, vice president of engineering and administrative vice president before being named president in May, 1958. Louis Ware will continue as chairman of the board.

NEW ASSIGNMENT

ATTAPULGUS, GA.—Paul Golditz, horticulturist, formerly of the University of Tennessee, has been assigned to the Attapulugus Field Station, a unit of the Georgia Coastal Plain Experiment Station in Tifton. He will conduct research work on vegetables.

SunOlin Announces Staff, Operating Changes

PHILADELPHIA—One staff appointment and two operating assignments have been announced by the recently formed SunOlin Chemical Co. at North Claymont, Del.

Richard D. Burt has been named technical staff assistant; James J. Honan, general operating foreman, and Bruce G. Hawthorn, technical assistant, according to the announcement by James I. Harper, president.

SunOlin Chemical Co. is a joint affiliate of Sun Oil Co. and Olin Mathieson Chemical Corp. The new plant, when completed early next spring, will produce 73,000 tons of urea a year for agricultural and chemical uses.

Iowa Weeds Thrive

MASON CITY, IOWA—Canada thistle is the big weed problem this year in this section, according to John Anderson, Ventura, acting weed commissioner. Heavy moisture and good growing weather have aided the weeds, now about two weeks closer than normal, to going to seed, he reports.

Only a little horse nettle and leafy spurge has been found this year. There is little actual infestation of Canada thistle, he says, as most farmers control the weeds with herbicides.

WEED CONTROLLING RINGS BELL

SAN FRANCISCO—Controlling agricultural pests may not seem like a telephone job, but the Pacific Telephone and Telegraph Co. spends a considerable portion of its time and a respectable sum of money on just that activity.

With the telephone men it is not so much a case of growing vegetables or crops or ornamentals. The purpose is to protect the telephone company's various facilities.

Trees and brush are continually flourishing and frequently grow so tall as to interfere with the telephone lines that carry the phone calls. To prevent this, a crew of repairmen must get out on the job and keep the brush trimmed down. They don't want to destroy the foliage, and they find an effective way is to use chemical sprays which protect the lines only from the undesirable growth, but leave the most beautiful aspects of the foliage.

The use of agricultural chemicals in this manner was widely publicized by Pacific Telephone this summer through the June issues of bill stuffers sent to the company's patrons. A picture showing a telephone man spraying such brush with an automatic hand spray was featured on the cover of the stuffer.

20 California Firms Register to Sell Fertilizer

SAN FRANCISCO—Twenty firms have registered with the California State Bureau of Chemistry to sell commercial fertilizers, during the last three months.

These include 10 firms in southern California, seven in the northern half of the state, and three located out of state. Among the group are the following: Alart Co., of Artesia; Angeli's Nursery of San Leandro; Brea Brand Agricultural Service of Stockton; Carr Feed & Seed, of Oxnard; Crawford Chemical, of Sanger; Dearstone Co., of Bellflower; Farm Supply Co., of Salinas; Fertiline Plant Food Co., of Santa Maria; Growers Fertilizer Service, Inc. of Wasco; Indoor Greens Co., of Modesto; Klauss-White, of San Antonio, Texas; Liquinox Co., of Orange; Martin Bros. of Davis; Nurs-Ree Special, Inc., of Dallas; Orgro Fertilizers, Inc. of Thousand Palms; Plat-R-Stik, Inc., of Hollywood; Robinson Fertilizer Co. of Orange; Taylor Chemical Corp. of Los Angeles; Vitalic Guano, Inc., of Los Angeles; and Wasatch Chemical Co., of Salt Lake City, Utah.

Thirteen new agricultural minerals registrants include four from southern California and nine from northern California.

Four new auxiliary plant chemical registrants include AFC, Inc. of Edison; Arizona Bio-Chem Manufacturing Co., of Phoenix, Ariz.; Fresno Bio-Chem Distributors of Fresno, and P. R. V. Patton Co., of Hanford.

Agrico Plant Construction Proceeding on Schedule

NEW YORK—Construction of the new fertilizer plant at Johnson Creek, Wisconsin, being built by the American Agricultural Chemical Co., is proceeding on schedule, according to C. M. Powell, president.

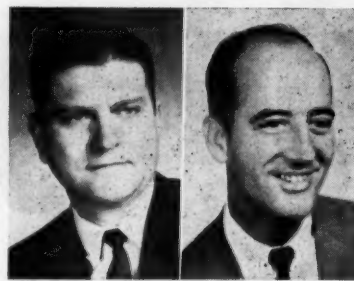
Begun in early June on the plant site 28 miles east of Madison, the first phase of construction is scheduled for completion by Nov. 1, Mr. Powell said. This first phase will include a mixed fertilizer storage building and bag and bulk shipping facilities, which will make "AGRICO" fertilizers available to Wisconsin farmers during the 1960 spring planting season.

Added to List

WASHINGTON—Ronnel, an organic phosphorus chemical, has been added to the list of insecticides recommended by the U.S. Department of Agriculture for the control of several livestock pests. Chemical name of the active ingredient is O,O-dimethyl O-2,4,5-trichlorophenyl phosphorothioate. Korlan is the name applied to the technical grade of ronnel.

FORM CORPORATION

EMMETT, IDAHO—Farmers Feed & Seed Co. of this city recently filed articles of incorporation with the secretary of state, listing \$200,000 capitalization. Incorporators are L. K. and Effie Saun and Harold and Ruby Fay Lyon, all of Emmett.



P. Paul Lowery

Joe D. Leeke

W. R. Grace & Co. Names Two Sales Representatives

NEW YORK—Grace Chemical Division of W. R. Grace & Co. has appointed P. Paul Lowery and Joe D. Leeke to its sales staff.

Mr. Lowery is assigned to the Memphis district sales office. He will represent the company in the states of Texas, Oklahoma, Kansas and New Mexico. Prior to his joining Grace in March of this year he was associated with the Chance Vought Aircraft, Inc., in Dallas.

Mr. Leeke recently with the sales service department of the division, is promoted to the Memphis district sales office. In his new capacity, he will travel in the states of Tennessee, Kentucky, Missouri and Illinois.

Irrigation Meeting

LUBBOCK, TEXAS—The Texas Irrigation Council has scheduled its third annual meeting in Lubbock for Oct. 1 and 2, 1959, according to a report by officials. While the program is not yet completed, it will cover many of the important phases of irrigation for the Southwest.

R. V. Thurmond, former irrigation specialist with the Texas extension service and now with the Portland Cement Co., Austin, is chairman of the program committee.

SEAWAY

(Continued from page 1)

the Seaway opening. Importers and exporters at ports served by the Seaway must be made familiar with inspection and treatments necessary for dealing in agricultural products.

Foreign fruits, vegetables, plants and animal products brought into Seaway ports in ships' stores, garbage and passenger baggage—as well as in cargo—are an increasing hazard to both Canada and the U.S. Freighters passengers and crew members from many lands will be entering the Seaway. Past experience has shown that unwanted plant material is found on one out of three ships arriving at U.S. ports from abroad.

Last year ARS plant quarantine inspectors barred a destructive plant pest from entering the U.S. every half-hour. They boarded more than 56,000 vessels at U.S. ports. With about two-thirds of this country's borders now vulnerable to pest invasion by water, regulatory officials expect that pest interceptions at ports may increase.

Canadian Researchers Gather 100,000 Texas Insects for National Collection

OTTAWA—About 100,000 specimens of insects in southern Texas have been collected this year by a team of Canadian researchers.

The collection, one of the largest ever made in Texas, has been added to the Canadian National Collection.

The Texas expedition was typical of the work done by the taxonomy section of the Entomology Research Institute, Canada Department of Agriculture, whose director, G. P. Holland, says: "Our goal is to be able to identify any specimen for anybody."

The national collection, started about 1916 with the pooling of department of agriculture and National Museum of Canada collections, now has 3,000,000 specimens representing roughly 80,000 species.

To explain why the group went outside Canada for insects, Mr. Holland said, "To be a workable tool, the collection must represent many parts of the world."

"Insects are not politicians; they don't declare themselves at customs. Thus we cannot stop at political boundaries either, but must study in-

sects by groups. Many pests are imported and we must have some knowledge of insects in Europe, Northern Asia and other parts of the world as well as in North America."

It is estimated that Canada has upwards of 80,000 species of insects and less than half of them have been identified to date.

Every year, more than 50 research laboratories across the nation frequently seek the aid of the insect identification experts. With 22 research specialists on the staff, the Canadian organization is only slightly smaller than that of the U.S. National Museum or the British Museum in England.

Collections have been made from various parts of the world, including New Guinea two years ago, but the work centers mainly on North America. In 1947, a start was made on insect collections from the Arctic and sub-Arctic and to date 65 points have been visited in the north.

These points stretch from Greenland to Alaska and north to Alert—500 miles from the North Pole and the most northerly point in Canada.



THIS IS the exterior of the Walton Farm Supply store in Mendota, Ill. The office and warehouse, which were constructed two years ago, are finished in attractive redwood.

Soil Tests, Soft Sell Help Illinois Dealer's Annual Fertilizer Volume

By AL P. NELSON
Croplife Special Writer

It is a well known fact that some farmers hedge when it comes to buying fertilizers in the amounts recommended by competent soil tests. Many of these farmers think "a little less than recommended will save money for us, and will do just as well as the full amount."

Of course, there are an enlightened few—and their number is increasing yearly—who fertilizer as soil tests recommend. Walton Farm Supply, Mendota, Ill., has an effective selling angle on fertilizer which induces a surprising number of farmers to fertilize up to soil test recommendations.

The method used by this fertilizer firm, headed by J. M. Walton, is relatively simple. When a farmer orders less fertilizer per

acre than the soil test calls for, Mr. Walton, or one of his salesmen will say to the customer, "Why don't you try fertilizing five acres or more up to recommendations, and then compare the yields on that plot with the fertilizer or tonnage per acre you have chosen to use this year?"

This is a challenge which many farmers like. It gives them an opportunity to check on the results of full fertilization, without committing their entire crop lands to the program the first year. Some farmers when offered this plan, fertilize up to 10 acres on soil test recommendations.

Quite a few farmers in the area have now started using recommended fertilizer applications through such a program. The Walton firm will help a farmer set up such plots on his farm and will also aid in

checking on results. A little guidance along this line pays off well, according to Mr. Walton, owner.

While many farmers in this corn area thought that 200 lb. per acre



A ROCK phosphate plant is utilized by Walton Farm Supply. The large storage tank holds four carloads of rock phosphate.

was a heavy application a few years ago, some farmers are now using from 400 to 600 lb. of 14-14-14 in this area. One man who has

(Turn to SOIL TEST, page 15)

Minnesota Store's Application Service Brings in Customers

When the farm chemicals dealer offers the customer an applying service, he often finds that this is one way to increase the rate of turnover of such stock. Often the problem of proper application is one which causes the farmer to hesitate in making a decision to buy.

In the case of Keltgen Mill & Feed, Olivia, Minn., for instance, the fact that Glenn Keltgen, the owner, has a crop dusting service helps to speed up the sale of those materials. When the farmer comes to the mill to inquire about crop dusting, especially to dust corn and to control weeds, he is told he can buy the materials at the mill, and the management will also dust it on his crops, if he so wishes.

If the farmer is busy with other

chores in summer—and this is often the case—he gives the Keltgen Mill & Feed a blanket order to include materials and dusting, and then he can continue with his own heavy work schedule.

In fact, so many farmers like this crop dusting service, that Mr. Keltgen often keeps three crop dusting machines busy during the summer months. He has several employees on his staff who are familiar with crop dusting operations and can handle the work very well. When the crop dusting crews are not busy—this seldom happens in summer—then they can work in the feed mill.

During the last few years, Mr. Keltgen, never a man to overlook a merchandising bet, noticed the in-

(Turn to APPLICATION, page 11)



By Emmet J. Hoffman
Croplife Marketing Editor

OVER THE COUNTER

It is always beneficial to hear from those businessmen who have had many years of experience in dealer-manufacturer relationships. These men—over the years—have been able to pinpoint areas of trouble as well as areas in which the dealer can make real progress.

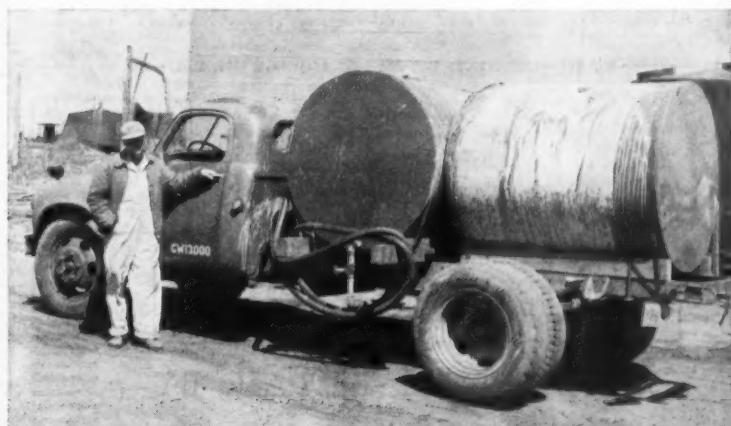
James H. Murphy and Dr. Robert Spitzer, executives of the Murphy Products Co., Burlington, Wis., and veterans in the field of agricultural marketing, have arrived at some definite conclusions about good and undesirable dealer practices. Here are some of them:

1. Good dealers control accounts receivable, work with their bank: Accounts receivable have wrecked more good businesses than any other one item. A bad account is just as bad when it's first put on the books as it is a year later when you've finally found out that it is almost hopeless to collect. Just because a man has a lot of money is no reason for you to let him pile up a big account on your books.

Credit is a special privilege that should be extended only to those who

pay frequently and promptly. Over-extended credit does nothing but harm. It loses friends instead of making them. Money is a commodity dealers need to do business. The more money is tied up, the more it curtails working capital. A bank is in business to give credit. According to the American Bankers Assn. throughout the midwest, approximately 75% of agricultural production financing is

(Turn to OVER THE COUNTER, page 15)



GLENN KELTGEN, owner of the Keltgen Mill & Feed, Olivia, Minn., displays one of the firm's liquid fertilizer trucks. This truck comes equipped with a boom attachment. According to Mr. Keltgen, many farmers want liquid nitrogen or other liquid fertilizers pumped into their farm storage tanks.

WHAT'S NEW

IN PRODUCTS • SERVICES • LITERATURE

To obtain more information about items mentioned in this department simply: (1) Clip out the entire coupon in the lower corner of this page. (2) Circle the numbers of the items of which you want more information. Fill in the name and address portions. (3) Fold the coupon double with the return address portion on the outside and fasten the edges with a staple, cellophane tape or glue. (4) Drop in the mail box.

No. 6942—Cotton Pest Control Leaflet

Recommended procedures for the control of cotton pests are outlined in a new leaflet published by Stauffer Chemical Co. The leaflet describes the formulations of Trithion available, dosage recommendations and application methods for the control of two spotted mite, cinnabar mite, tropical mite, cotton aphid, leafworm and leaf perforator. Copies are available without charge by checking No. 6942 on the coupon and mailing to this publication.

No. 6940—Spray Nozzle, Control Valve

Spraying Systems Co. announces the DirectoJet, designed with a control valve that provides spray to either the left or right side of the



tractor, or to both sides at one time as well as off-and-on control. The entire sequence of operations is controlled by the operator without leaving the tractor seat, the company

said. Because the spray can be shut off to either right or left, the spray can be set in the down-wind direction on windy days. This control feature is also of advantage when spraying near fence rows or buildings. The unit is easily mounted on a tractor, with the control handle positioned convenient to the operator, company literature explained. Five different capacity ranges are available. The DirectoJet may be removed and used as an auxiliary spray gun. Check No. 6940 for details.

No. 6941—Feed, Fertilizer Body

A combination bulk feed and fertilizer body called the "Feedilizer," has been introduced by Simonsen Manufacturing Co. The 3,800 lb., all-steel body can give the dealer an extra fertilizer spreader during the rush season and it also can allow the dealer to expand his operation from the relatively short fertilizer spreading season to a full 12 months by adding bulk feed delivery, the company said. The Feedilizer is two complete bodies in one, with a total capacity of 261 cu. ft. The two compartments will hold 8½ tons of fertilizer or 5.2 tons of feed. This allows splitting a load into two separate orders of fertilizer at a time or separate feed orders. One compartment can be filled with fertilizer and the other with feed. The unit has all the features of a bulk feed body and a spreader. Its feed delivery auger will reach 21 ft. bins, will turn 360° and will deliver feed at the rate of 800 lb. a minute. The fertilizer spreader unit is designed to spread accurately down to



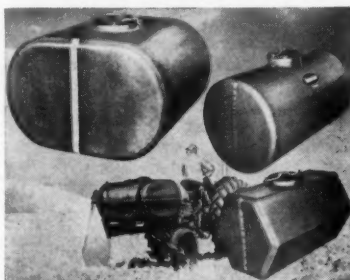
75 lb. an acre. Because its apron is run by a wheel drive, the truck can be operated in all gears or with a two-speed axle without affecting the rate of fertilizer spread. Stainless steel is used at all critical points to reduce corrosion. For more information, check No. 6941 on the coupon and mail.

Also Available

The following items have appeared in previous issues of Croplife. They are reprinted to help keep dealers on the regional circulation plan informed of "What's New."

No. 6935—Sprayer Tanks

Hanson Equipment Co. is offering a complete list of Fiberglass sprayer tanks ranging in size from 50 to 500 gal. and in a variety of shapes to suit individual needs. According to the company, the tanks are impervious to



farm chemicals and rust, and will withstand sharp blows without breaking or denting. Translucent tank walls allow the user to view the liquid level at all times. A sight gauge for reference is on either end. Complete information about the tanks can be obtained by checking No. 6935 on the coupon and mailing to this publication.

No. 6939—Display Units

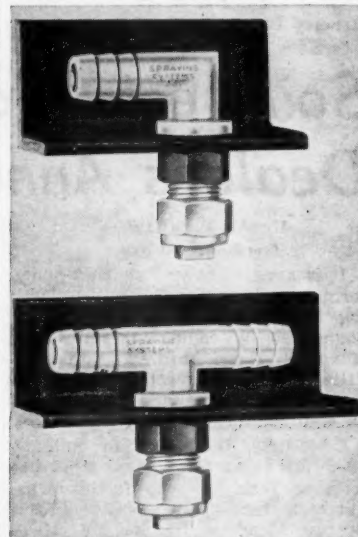
Salesroom wall type merchandisers and gondolas have been announced by Shure Manufacturing Corp. Heavy-duty steel uprights and brackets, available in a number of sizes, are quickly adjustable to meet seasonal requirements, the company said. Wall displays can include lettered plastic valances and large perforated display panels which accommodate numerous combinations of displays. Planning and layout service is available from Shure Manufacturing Corp. to assist in the best utilization of available space. For details check No. 6939 on the coupon and mail.

No. 6930—Granular Herbicides

Amchem Products, Inc., is offering two new 2,4-D granular herbicides for control of water weeds. Marketed under the trade names "Aqua-Kleer 10" and "Aqua-Kleer 20," the 10 and 20 formulations represent the per cent by weight of 2,4-D acid equivalent. Aqua-Kleer 20 is for bulk use. According to the company, the concept of this control is easier application, slow release of the active ingredient and coordination between the treatment and rapid root growth. Aqua-Kleer 10 comes in 5 lb. canisters and Aqua-Kleer 20 comes in 50-lb. bags. For details check No. 6930 on the coupon and mail.

No. 6932—Nylon Spray Nozzles

A new type of Tee-Jet spray nozzle has been introduced by Spraying Systems Co. which permit the fabricating of a spray boom from an angle-iron instead of piping. The nozzles are mounted in holes drilled in an angle-iron at desired intervals and the hose shanks are connected by hose to make up the complete boom. The nozzles are supplied with



double and single hose shank bodies for inside and end positioning on the boom. The complete nozzle consists of hose shank, nozzle body, cap and strainer body made of nylon, with orifice tips in either aluminum or stainless steel. The assembly is held in position on the angle-iron with a lock nut. For details, check No. 6932 and mail.

No. 6931—Movie on Urea

"Greener Pastures," an educational movie which stresses the value of urea for supplemental nitrogen applications to increase agricultural yields and efficiency, has been announced by E. I. du Pont de Nemours & Co., Inc. Filmed mainly in the Mid-Atlantic and Midwest states, the 16 m.m. color, sound movie compares old farming methods with those of the modern farmer who employs scientific soil-testing and fertilization. Benefits of pasture-building to dairy-men and cattlemen are also cited in illustrations of increased yields resulting from supplemental nitrogen applications. For information on obtaining a print of the film, check No. 6931 on the coupon and mail.

No. 6936—Sales Booklet

A brochure entitled "14 Tested Ways to Increase Sales and Cut Sales Cost," has been announced by Perrygraf Corp. Seventy-six pictures and 122 case histories are used to show "how to pep up the whole sales program by using slide-charts to put product facts at the fingertips," com-

Send me information on the items marked:

- | | |
|---|---|
| <input type="checkbox"/> No. 6930—Granular Herbicides | <input type="checkbox"/> No. 6937—Molded Tank |
| <input type="checkbox"/> No. 6931—Movie on Urea | <input type="checkbox"/> No. 6938—Fly Killer |
| <input type="checkbox"/> No. 6932—Nylon Spray Nozzles | <input type="checkbox"/> No. 6939—Display Units |
| <input type="checkbox"/> No. 6933—Fruit Insecticide Folders | <input type="checkbox"/> No. 6940—Spray Nozzle, Control Valve |
| <input type="checkbox"/> No. 6935—Sprayer Tanks | <input type="checkbox"/> No. 6941—Feed, Fertilizer Body |
| <input type="checkbox"/> No. 6936—Sales Booklet | <input type="checkbox"/> No. 6942—Cotton Pest Control Leaflet |

(PLEASE PRINT OR TYPE)

NAME

COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

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P. L. & R.)
MINNEAPOLIS,
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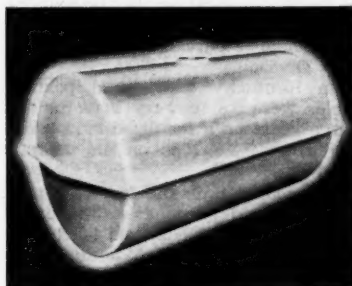
For the man who wants to guarantee his company's future and his own

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pany literature said. One slide-chart, distributed by Phillips Petroleum, enables one to see instantly what fertilizer is needed to replace elements removed from the soil by any one of 30 crops. Other slide-charts show egg cost calculations, feed requirements, how to check rate of fertilizer application, equipment and floor space necessary for different numbers of chickens, dosage for disease prevention and many other farm problems. The booklet and other materials are available free by checking No. 6936 on the coupon and mailing.

No. 6937—Molded Tank

A molded fiber glass tank for use in spraying or storing corrosive liquids has been announced by the Molded Fiber Glass Body Co. Designed in a cylindrical shape, the 200-gal. tank is said to resist corrosion and weathering. It is recommended for use as a spray tank for insecti-



cides and liquid fertilizers, or as a storage tank for chemicals. The tank is easy to clean, the company said, and is lightweight and impact resistant. It is 58 in. long with a 32 in. diameter. Available in a selection of colors, the tank is translucent so that the liquid is always visible. For more information check No. 6937 on the coupon and mail to this publication.

No. 6938—Fly Killer

Camp Chemical Co. announced a new Diazinon Fly Bait Killer. In powder form, the product attracts flies and kills them, the company said. It is especially designed for outdoor use. The company guarantees a 98% fly reduction each day of use. The package is ready for use merely by sprinkling on the ground or horizontal surfaces. The packages come 12 to the case. For information on this fly killer check No. 6938 on the coupon and mail to this publication.

No. 6933—Fruit Insecticide Folders

Two folders which describe use of Sevin insecticide on fruit are now available from Union Carbide Chemicals Co., division of Union Carbide Corp. One folder gives details about application of Sevin on apples, pears and peaches, and the other one covers grapes. Application rates and directions are included. Copies of the

folders may be obtained by checking No. 6933 on the coupon and mailing to this publication.

APPLICATION

(Continued from page 9)

creasing use of liquid nitrogen and mixed fertilizers in his area. So he began selling and applying these products. He has two large metal storage tanks for liquid nitrogen and mixed fertilizers on his property. Then he has a large truck with a 30 ft. spray boom attached. If the farmer wants the nitrogen or other liquid fertilizer sprayed on the ground, the Keltgen firm can do it.

In some cases the farmer has his own spreading attachments on the corn planter and his own liquid fertilizer storage tanks on the farm. In such an event, the Keltgen firm merely pumps the fertilizer into the farmer's storage tanks.

"We have found that this is a good business to be in and with relatively little price cutting," reports Mr. Keltgen. "We have a number of customers who buy 25 to 30 tons of liquid nitrogen from us and we spray it on. We usually include the spraying charge right with the per ton price. Many farmers who become accus-

tomed to using liquid fertilizer like it very much and reorder every year. Some will buy part of their requirements in liquid and the rest in dry fertilizer, in order to check one type against the other."

Farmers in this region, many of whom raise a lot of corn, are using more fertilizer poundage per acre than they did three to five years ago, states this dealer. He believes that check plot testing for yields, plus consistent educational programs put on by suppliers and others, have helped to convince the farmer that when he fertilizes according to soil testing recommendations, or close to them, it is highly profitable for him from the standpoint of crop yields.

In connection with his feed business, Mr. Keltgen has seen how profitable consistent educational programs are in producing results. Therefore, he stages several fertilizer meetings yearly with the cooperation of suppliers, and he finds farmer attendance is very good and reception excellent. Most top notch farmers today, he reports, are anxious to do a little extra "schoolwork" to find out how to increase crop yields at low cost.

This spring, Mr. Keltgen bought an R. L. sprayer at a cost of \$300 and mounted it on a two wheel trailer.

He rents this outfit free of charge to cattle raisers to spray for cattle grubs, and the service is very popular. Cattlemen sign up for the free rental on an appointment basis. In order to be eligible for the free rental, they need to purchase their spray materials from Mr. Keltgen.

He got the idea for this free spray service by talking to farmers when on livestock weighing trips. Cattlemen complained so much about cattle grubs and cited high prices offered for grub free cattle that Mr. Keltgen figured he could do something in his area to solve the problem. He reports he has made many new contacts with cattlemen through this service.

Mr. Keltgen also has a sizable stock of farm chemicals in his small supply store adjoining the office. Many farmers see and buy these displayed items and apply the products themselves.

"The use of farm chemicals in the field of agriculture today is increasing," Mr. Keltgen points out. "Farmers know that wise use of chemicals can up crop yields and help make a better net profit. That's why I figure I, too, can profit by selling them and having an application service on a few."

Books on Fertilizers And Their Use

FUNDAMENTALS OF SOIL SCIENCE—Third Edition

By C. E. Millar, late Professor Emeritus of Soil Science; L. M. Turk, director; and H. D. Foth, associate professor of soil science, Michigan State University.

This text completely revises and brings up to date the second edition. Special attention is given to progress made in the basic principles of soil science since the publication of its predecessor. This edition includes more emphasis on soil texture and the concept of the texture profile, more discussion of the influence of the soil forming factors on soil development, and more facts about clay minerals to provide a clearer understanding of the differences in the behavior of soils. 496 pages, illustrated. 6x9 1/2".... **\$7.75**

SOIL FERTILITY AND FERTILIZERS (1956)

Samuel L. Tisdale and Werner L. Nelson

An advanced college text, for juniors and seniors, following backgrounding course in soils. Covers elements required in plant nutrition, their role in plant growth, and the soil reactions to these nutrients. Several chapters on manufacture, properties and agronomic value of fertilizers and fertilizer materials. Latter part covers soil fertility evaluation and use of fertilizers in sound management. 430 pages, cloth bound **\$7.75**

PLANT REGULATORS IN AGRICULTURE

Dr. Harold B. Tukey

Published September, 1954. A text book giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarp, abscission, prevention of preharvest fruit drop, delaying foliage and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages **\$6.50**

THE CARE AND FEEDING OF GARDEN PLANTS

Published jointly by the American Society for Horticultural Science and the National Plant Food Institute.

An entirely new, one-of-a-kind book. It is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or what makes plants grow. Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color **\$3.00**

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A. Carl Leopold

A 366-page book, complete with bibliography, appendix, and index, discusses the fundamental and applied aspects of growth hormone and synthetic auxin action in plants. These are of interest to all workers in agricultural chemicals—for weed control, flowering control, fruit set, flower or fruit drop and plant propagation. The text is divided into two sections, (1) fundamentals of auxin action, and (2) auxins in agriculture. These cover developmental effects of auxins, the physiological and anatomical effects of their application, the chemical nature of growth regulators, and methods of applying auxins and their persistence in plants and soils. Other subjects covered: rooting, parthenocarp, flower and fruit thinning, control of pre-harvest fruit drop, flowering, dormancy and storage, herbicides, miscellaneous uses of auxins, and potentials of auxins and auxin research. Published by University of California Press..... **\$5.00**

ECONOMIC AND TECHNICAL ANALYSIS OF FERTILIZER INNOVATIONS AND RESOURCE USE

By E. L. Baum, Earl Heady, John Pesek and Clifford Hildreth.

This book is the outgrowth of seminar sessions sponsored by TVA in 1956. Part I—Physical and Economic Aspects of Water Availability in Fertilizers. Part II—Examination of Liquid Fertilizers and Related Marketing Problem. Part III—Methodological Procedures in the Study of Agronomic and Economic Efficiency in Rate of Application, Nutrient Ratios and Farm Use of Fertilizers. Part IV—Farm Planning Procedures for Optimum Resource Use. Part V—Agricultural Policy Implications of Technological Change. It presents new methodological techniques for more efficient handling of research problems related to fertilizers and provides more meaningful answers to problems of practical application **\$1.95**

HUNGER SIGNS IN CROPS—Second Edition

A symposium—published jointly by the American Society of Agronomy and the National Plant Food Institute.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 17 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color **\$4.50**

USING COMMERCIAL FERTILIZER (1952)

Malcolm H. McVickar

Dr. McVickar is chief agronomist of the National Fertilizer Assn. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trade-element plant foods. 208 pages, 106 illustrations, cloth bound..... **\$3.50**

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Gilbeart H. Collings

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FARM SERVICE DATA

EXTENSION SERVICE REPORTS

Many Midwestern farmers could triple their profits by using the right kinds and amounts of fertilizer, said Dr. Moyle S. Williams, chief agricultural economist of the National Plant Food Institute.

Dr. Williams bases his statement on the results of research at Midwestern agricultural colleges.

"From all the evidence we have accumulated from the experience of good farmers, there still seems to be profitable opportunities today to increase the applications of fertilizer on individual farms," says Dr. Williams.

A good many farmers are already using fertilizer at top profit-making levels, he says. But all signs indicate that the average farmer could cut his costs of production and increase his net income through the proper use of plant food.

"As farmers increase their crop producing efficiency through fertilizer use," says Dr. Williams, "they can cut down on the acreage devoted to crops and still make more money."

★

Pastures will last longer and yield more forage if they are kept well fed with applications of fertilizer each year, according to a statement by two University of Kentucky agronomists—E. C. Doll and A. L. Hatfield.

These research men base their statement on results with test plots in a pasture seeded to an orchard-grass-fescue-ladino clover mixture. At seeding time the pasture had been fertilized on the basis of soil tests.

Following seeding, one plot got an annual application of 300 lb. of 0-10-20 fertilizer. The other plot got no additional plant food.

Yields were about identical from both plots the first year. But each year thereafter, production was higher on the plot getting the maintenance fertilizer applications. The second year this plot yielded about 500 lb. more dry matter than the unfertilized plot, and the third year, 900 lb. more.

Mr. Doll and Mr. Hatfield report that clover growth is running out on the non-maintenance plot. At present it has only half as much ladino clover as the plot getting yearly fertilizer treatments. Renovation will soon be necessary on the non-maintenance plot, the two agronomists say.

★

Fertilizer "prescriptions" are helping farmers cut costs of growing corn and increase profits through higher yields per acre, reports Dr. Kermit C. Berger, University of Wisconsin soil scientist.

Dr. Berger says these "prescriptions" are part of the Wisconsin Pacemakers Corn program which has helped boost average corn yields about 20 bu. per acre in the state in the past seven years.

An individual "prescription" is written for each farmer participating in the program. This is based on a soil test of his fields, plus other information including the previous cropping history of the field and the soil treatments he has previously used.

This prescription includes mainly the fertilizer recommendation; also suggestions on weed and insect control, tillage methods and other factors.

The value of these prescriptions was shown last year, says Dr. Berger, when, in spite of widespread drouth, Pacemakers' farmers produced corn yields averaging 102 bu. per acre, as compared with a statewide average of 58½ bu.

Dr. Berger points out that maximum profits on corn per acre depend on a low cost unit of production. This can be achieved by using the most profitable amounts of fertilizer per acre.

He reports that some farmers in the Pacemakers program have produced corn for as little as 45¢ per bushel.

★

Many farmers are working their soils so much that the extra tillage packs the soil tight and robs plant roots of oxygen needed for healthy growth and profitable crop yields, reports E. D. Longnecker, Michigan State University soils scientist.

Too much tillage with heavy machinery packs the soil tight instead of opening it up, Mr. Longnecker points out. This breaks down desirable structure and plugs soil pores.

As a result, says Mr. Longnecker, drainage is slowed down. Air cannot move freely in or out of the soil. Crop roots have a tough time "breathing." Crops cannot make efficient use of plant nutrients provided by commercial fertilizer. This can mean lower yields of corn, small grains and other crops.

Mr. Longnecker says that when the soil is heavily compacted in the feeding root zone, oxygen can't move fast enough to the root surface to meet the plant's oxygen requirements. Plants growing in such an oxygen deficient area often are light green in color. Plants may be stunted and in extreme cases may even die, he says.

The hazards of soil compaction can be cut down with minimum tillage, Mr. Longnecker reports. This method involves plowing with a smoothing implement attached to the plow, and then planting or seeding. He emphasizes that the soil

should not be worked when it is too wet for proper tillage.

A steady supply of organic matter is needed to keep the soil loose and mellow and to promote a good granular, crumb structure, Mr. Longnecker says. This can be achieved by good cropping and management methods that return plenty of well-fertilized crop residues to the soil. A granular soil structure promotes drainage and aeration, so crop roots can receive and make use of the air and water they need.

★

Farmers who topdress their legume-grass meadows after the first cutting will get dividends in the form of extra tons of hay per acre later this season, reported the Midwest division of the National Plant Food Institute.

In addition to giving higher yields, fertilized hay is generally better quality, with a higher protein content, NPFI said.

This can mean important savings on feed costs for beef and dairy herds and more profit per animal per acre.

Another important dividend from topdressing meadows is that the fertilizer nutrients help lengthen the life span of alfalfa and other legumes in the pasture stand. Thus you save time, money and labor by not having to reseed so often.

Agronomists report that legume-grass meadows use up large amounts of phosphate and potash, according to NPFI. Three tons of alfalfa can take from the soil as much as 180 lb. of potash and 46 lb. of phosphate per acre.

On many Midwestern farms these nutrients should be replaced in the form of commercial fertilizer, in order to maintain thick legume stands and high yields.

Soil specialists advise testing the soil to find out how much of each nutrient the land needs, and to add fertilizer according to those needs.

★

A few acres of Sudan grass can be insurance for emergency summer forage if blue grass pastures burn out in July or August, reports the Midwest division of the National Plant Food Institute.

University of Illinois extension dairy specialists say an acre of Sudan on fertile soil can carry two to three cows.

They suggest seeding half the pas-

ture as a starter and then planting the other half 10 days to two weeks later. This will furnish good rotational grazing.

Lester H. Smith, Purdue University extension agronomist, says Sudan grass needs soil and nutrient conditions similar to those required by corn.

"If no soil test has been made," he says, "then 250 lb. per acre of a phosphate-potash fertilizer such as 0-20-20 or its equivalent will be profitable on dark colored soils that have a high nitrogen content."

"On light colored loam soils, a nitrogen-phosphate-potash fertilizer, such as 10-20-20, 10-10-10 or its equivalent will give more efficient production."

In some cases additional nitrogen is advisable on light colored sandy and sandy silt loam soils, if manure or legume sod is lacking.

The seed can be drilled at the rate of 20 to 30 lb. per acre.

Sudan grass pasture is ready to graze when it is about 18 in. high.

Some agronomists recommended Piper as the best variety because it is low in prussic acid and is more resistant to leaf diseases than some other varieties.

★

The success or failure of a legume-grass seeding may depend on the fertilizer treatment, according to Dr. E. C. Doll, University of Kentucky agronomist.

"This is particularly true in areas where freezing and thawing result in considerable heaving," says Dr. Doll, in a statement summarized by the National Plant Food Institute.

Pasture yields were boosted 5% tons per acre over a three-year period when legume-grass pastures received a heavy application of phosphate-potash fertilizer at seeding time and an annual topdressing each spring, says Dr. Doll.

In Kentucky tests, total pasture yields were 9.3 tons per acre for the three years on a fertilized field, compared with 3.6 tons on an unfertilized check plot.

At seeding time the fertilized pasture received phosphate and potash at the rate of 120 lb. and 60 lb. per acre, respectively. The annual topdressing included fertilizer supplying 30 lb. of phosphate and 60 lb. of potash per acre.

"Yields of both hay and pasture could be greatly increased by fertilization based on soil tests and by improved management practices," he points out.

★

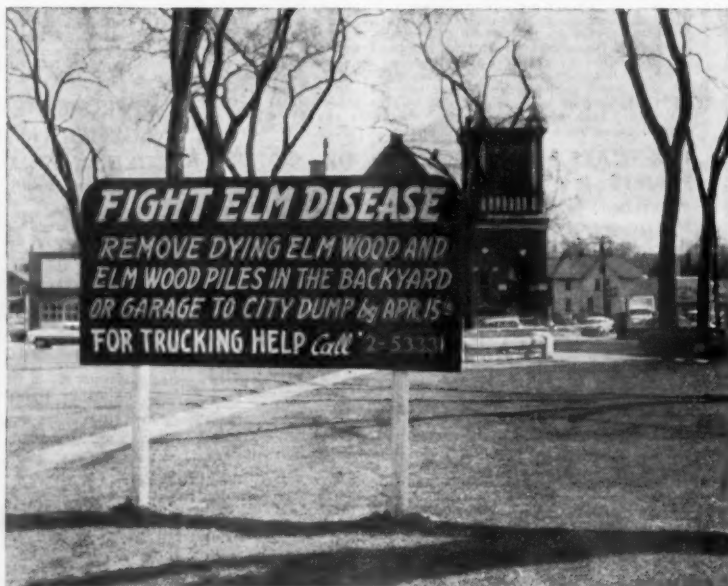
Nitrogen fertilizer increased growth rate of a short-leaf pine plantation last year at the University of Illinois Dixon Springs Experiment Station in southern Illinois.

W. R. Boggess and A. R. Gilmore, foresters at the college of agriculture, report that 100 lb. of nitrogen alone and 100 lb. of nitrogen and 100 lb. of 48% superphosphate were applied to 20-year-old stands of short-leaf pines in 1/20-acre plots during March last year. Similar plots had no treatment.

Fertilizer was broadcast on the ground surface before the trees began to grow. Diameter breast high was marked on all trees and measured to the nearest 5/100 in. at the beginning and end of the growing season.

The average diameter growth was .158 in. for the nitrogen-fertilized trees, .123 in. for the nitrogen- and phosphorus-fertilized trees and .106 in. for the unfertilized trees.

Mr. Boggess and Mr. Gilmore point out that the 1958 growing season at Dixon Springs was unusual because rain fell all summer and the trees did not stop growing until mid-Sep-



THE CITY of Waukesha, Wis., did its share this year to notify people of that city to fight elm disease. The local government erected a sign in the downtown area near a leading hotel, and the copy read: "Fight Elm Disease . . . Remove dying elm wood and elm wood piles in the backyard or garage to city dump by April 15th. For trucking help call 25333."

tember. Ample July and August rainfall kept the fertilizer available for tree growth.

The researchers cannot explain the unexpected small response to the combination of nitrogen and phosphorus fertilizers, especially since southern Illinois soils are low in available phosphorus. Additional studies now going on may supply some of the answers.

★

This may be the year that nitrogen sidedressing of corn could really pay off, said J. A. Stritzel, Iowa State College agronomist.

Sidedressed nitrogen should be especially profitable where corn follows corn or grass sods on which no manure was spread, he added.

The good corn crop last year removed considerable amounts of nitrogen, Mr. Stritzel pointed out. Furthermore, the large amounts of rain during May in much of the state moved the soluble nitrate nitrogen to lower soil layers and possibly beyond the root zones of this year's crop.

Another indication that corn might benefit materially from additional nitrogen is the large degree of nitrogen deficiency which was present this spring in many oat fields throughout the state. The lack of available nitrogen for the oat crop is a good indication of a similar situation in many corn fields. This situation may be more serious in corn, however, because of its larger need for nitrogen, Mr. Stritzel warned.

A sidedressing of from 40 to 60 lb. of nitrogen made from now on, where fields have not been fertilized with nitrogen earlier, should be highly profitable, Mr. Stritzel said. The degree of response will vary, however, depending on the phosphorus and potassium status of the soil and the stand level present. Subsoil moisture is adequate in most soils and should help insure yield response.

Sidedressing of from 20 to 40 lb. of nitrogen fertilizer on fields which received plow-down applications of this nutrient would insure an adequate supply of nitrogen for the crop since some of the plow-down nitrogen may have been leached too deeply for effective use until much later in the season. Sidedressing of previously nitrogen-treated fields should be limited to those fields in which stand levels are at least 16,000 plants per acre.

Acceptable sources of nitrogen for sidedressing are anhydrous ammonia, liquid nitrogen solutions and all sources of dry nitrogen. Phosphorus and potassium should not be sidedressed in either the liquid or dry form since they do not move downward very far into the soil with percolating water, Mr. Stritzel advised.

★

More than 85 diseases common to alfalfa either do not thrive in West Virginia or farmers generally do not recognize them and the damage they do. It could be, too, that the varieties being grown are at least partially resistant to disease.

In any event, only 8.7% of 482 alfalfa growers said diseases bothered their alfalfa when the question was asked them by their county agricultural agent, R. J. Friant, extension agronomist at West Virginia University, reported. These growers reside in 47 different counties of the Mountain State.

Among the 41 farmers who reported disease damage to alfalfa, leaf spot was mentioned most frequently or 24 times. Four persons said blight; four said yellow leaf; three said crown rot; three reported wilt; two reported root trouble, and one each said insect trouble, blackleg, spider mite and blackstem.

SCHOENFELD AND MCGILLICUDDY



By AL P. NELSON
Croplife Special Writer

When Minnie Schoenfeld went outdoors to hang up a few dish towels on the clothesline that warm morning, she heard a cheery "Good morning, Minnie!" from the next yard.

Looking up Minnie saw her smiling neighbor, Mrs. Bill Harter, pruning rose bushes, a pair of black rubber gloves on her hands. Mrs. Harter wore a nice orange colored dress, quite a contrast to Minnie's five year old blue gingham.

"Oh, hello," Minnie said apologetically. "My, what a pretty dress you have on."

Mrs. Harter smiled. "I'm glad you like it. Just picked it off the rack at the Enterprise Department Store for \$8.99 and it fits perfectly! At least Bill says so. I like color when I'm out fussing with the lawn and garden. No slacks for me."

Minnie sighed. "Oh, I wish I could have pretty dresses like that. But—but you know—"

"Yes, we know how Oscar feels about those things, Minnie," Mrs. Harter said sympathetically. "Certainly with the way people are buying farm and garden supplies at the store, Oscar could afford to buy you a new dress every week."

"Every week!" Minnie was horrified at such extravagant thoughts. "Once a year would satisfy me."

"He certainly can afford it, Minnie," said Mrs. Harter firmly. "Why, we bought a new power mower from Oscar and Pat this week, some lawn fertilizer, shrubs and grass seed. Oh, yes, a sidewalk edging tool, too. It's so much fun fixing up gardens and lawns. Most people think so, I'm sure."

Minnie looked dejected, and said nothing. Her eyes were still on Mrs. Harter's pretty orange dress.

"You know," Mrs. Harter said gently, "I think it would help you to get a dress if you gave Oscar a tranquilizer pill before he goes shopping with you. That's what I give Bill in his coffee before such trips. He doesn't know it, but those pills make him much more agreeable."

"Tranquilizers!" Minnie's black eyes were wide. "Aren't they expensive?"

"Oh, no. Not any more than other pills. And they do quiet a person, you know. Ornery people become almost human."

Minnie shook her head. "Oscar would never let me buy them. He complains because his liver pills cost so much."

Mrs. Harter smiled. "We've got a whole bottle full of tranquilizers, Minnie. I'll get you some. You've been a good neighbor. Try some on Oscar."

Therefore, as a test, Minnie put a tranquilizer pill in Oscar's coffee that night at dinner. He smacked his lips, then said, "Say, that coffee's bitter, Minnie. Well, what can we expect for Grade 4 at the chain store? It saves us money anyway, and that's the main thing." He yawned. "Ach, I am feelink sleepy and lazy. For once I'll be like Pat—I'll sleep in the daytime."

Watching him lying on the couch and hearing him snore, Minnie concluded that tranquilizing pills worked. But she did not want Oscar to fall asleep in a dress shop, so she cut a pill in half and wrapped it in tissue paper and put it into her purse.

The next night was Friday and Oscar got half a tranquilizer pill in his coffee. When Oscar yawned a little Minnie reminded him there was a sale on porkchops at the cut rate

meat market near the brewery, and would he drive her down to get some.

Oscar agreed. "Minnie, that is what I like, when you think about saving money. You are a goot frau sometimes."

After they got the porkchops, Minnie suggested she wanted to look at a housedress at the Cut Rate Specialty Shop. Grumbling, Oscar agreed to go along. "You can look, but don't buy," he said. "Ach, you haf a closet full of dresses."

"Yes, old ones," Minnie reminded him. "Some are 15 years old."

Oscar took a chair in the dress shop and sat immobile while Minnie tried on dress after dress. She would show each to Oscar and ask him if he liked it. He would merely grunt, which meant he didn't. So the exasperated sales girl had to keep on dragging out more dresses for Minnie to try on.

Oscar suddenly felt very sleepy, in fact, sleeper than he had felt for days, and he knew his head was nodding. Then, like a tornado a heavy hand hit him in the back and almost knocked him off the chair.

"Hello, Oscar, you old son of a gun!" called a masculine voice. "So here is where you spend all your fertilizer profits eh—decking out the old lady in new dresses?"

"Oh, Herm, stop your kidding," said his plump, rosy cheeked wife. "You know women need new dresses now and then. I want one myself. Sit down and visit with Oscar while I try one on. Can I start with \$15?"

"Heck, no," growled Herman Anderson, sitting down on a spare chair and crossing his long legs, "you didn't marry a banker, woman. Just a plain dirt farmer, that's all."

His wife made a face at him, picked a \$20 dress off a rack and marched to the try-on rooms.

"Oscar," whined Herman in his kidding mood, "when are you going to give us farmers a break on fertilizer?"

"Break!" Oscar snapped, still angry at being awakened by the slap on his back. "We'll get broke if farmers don't pay their bills quicker. Ach, always you want something for not-ink, eh?"

Herman chuckled. "Still pinchin' the pennies, eh, Oscar? I'll bet you haven't got any sauerkraut jugs to fill with them. Yes, we farmers need

a break. Why don't you ever give us a break on used fertilizer?"

"Used fertilizer!" Oscar frowned.

"Sure. Fertilizer that you have kept overly long, where the bags are torn or faded from the sun. Or fertilizer where you spilled molasses over the bags or something. You mean to tell me that this is one business where there is no used merchandise? There is in other fields. There must be in this one, too."

Oscar's eyes were wide with excitement. "Py Golly," he said, slapping his knees. "Ach, why didn't I think of it before? Minnie, come here."

Skinny Minnie approached in a pink creation that made her look like a scared rabbit. "Oscar! What!"

"Ach, I didn't think of it until Anderson brought it up. I know where you can get a good used dress, Minnie."

Minnie paled. "A used dress? Where?"

"At the pawn broker in Des Moines. Ach, you remember I dropped him a cardt three years ago and he came outd and sold me three suits for \$7 each. I'm still wearin' them. Maybe we can get some dresses for you for \$2 each. It will only cost us a cardt to find outd if he has some."

The saleslady's nose was lifting toward the ceiling. "Well—I!" she said sharply.

Oscar smiled thinly. "I was sleep-ink, but I woke up," he said. "Danke-schone, Anderson, you gafe me an idea on used schtuff. Drop in at the store sometime. I gif you a free pencil maybe."

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Sales Technique Helps Dealer Expand Volume

By J. I. SWEDBERG
Crophlife Special Writer

"The way to success in a business is to keep selling, the customer likes to be sold." That was the method of operation followed by Glenn O. Tiegen in expanding the volume at Tiegen's Shopping Center at Hayfield, Minn. The Shopping Center carries a comprehensive line of merchandise in order to better fill the needs of farmers in the area:

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- Provide a wide selection in merchandise.
- Offer credit.
- Advertise the business.
- Know the customer's needs.
- Take advantage of discounts.
- Do a job of buying.

In the beginning the store was largely limited to handling food, with few sidelines. As time went on and demands grew, other lines were added. They now include in addition to food, light dry goods, fertilizer, feed, paint, chemicals, veterinary supplies, weed sprays, grain driers and farm equipment.

The practice of branching out in merchandise lines is dictated by the location of the store. Farmers like to fill their needs in one trip, Mr. Tiegen says. Since the nearest town is six miles away, extra travel would be involved should the farmer be unable to buy what he wants at the Center. If potential customers cannot find what they need at the Center, they go elsewhere, taking their entire business with them.

In selecting his lines Mr. Tiegen follows this policy, "If we see anything that looks like a good deal we go into it."

Doing a good job of selling is necessary to the success of the business, the store owner says. In recognizing the human desire for attention, he tells us that the customer likes to be sold. "So we have to get on the ball and sell him." He used as an example his own case when he was in the market for a car. Receiving no attention in the dealer's establishment, he went elsewhere, and another dealer sold him the car.

If the store does not carry what the customer wants, "we sell him on something else, or get him what he wants." Mr. Tiegen sometimes tells close friends that "if we don't have it you don't need it."

Extension of credit is another

practice considered important at the Tiegen Shopping Center. "We must extend it," he says, "the good customers are always good."

Although the food line is not included in the credit policy, credit is seldom refused if arrangements can be worked out. Should the store go on a cash basis completely, the business in the heavier lines would suffer, he says.

"If a customer owes you money and tries to avoid you, be sure to contact him, and possibly extend more credit. It has worked," he says. A big don't in Mr. Tiegen's policy is don't dun a man in the store. It is better to mail him a statement, or better yet to have a personal interview with him. The personal contact is the best solution for many problems, Mr. Tiegen says.

Should a customer ask for a big line of credit, the owner advises him that it would then be necessary for the store to borrow more money, suggesting that the customer might well do this. In some cases customers will go to the bank for their funds, but in others they prefer to depend on the credit of the store.

A system of 30 day credit is being established as rapidly as possible. Few customers are asked to sign notes or crop mortgages and contracts. Ninety percent of them are good, he says.

How about credit losses? They are limited to about \$100 a year, Mr. Tiegen says.

Credit for the store is tightening, however, and suppliers are clamping down. Where 60 day credit was formerly extended, it is now 10 days.

"You must keep the customer happy, and that includes remembering names. The practice goes a long way in making a success of the business," he says. Mr. Tiegen likes to deal with customers as individuals, each person having a different personality. The policy gets the customer to feel that he is being accepted, and he reacts accordingly.

When it comes to the policy of establishing prices, this is what Mr. Tiegen says, "I like to mark goods according to their appearance. If I have an item that looks appealing, I may mark it up."

In general the supplier's suggested price is followed but on larger sales the store often gives discounts, which



KEY members of Tiegen's Shopping Center in Hayfield, Minn., are Mrs. Glenn O. Tiegen, shown in the left photo, and Mr. Tiegen, shown in the right photo. Mr. Tiegen feels that a businessman's wife is his best asset. Mr. Tiegen is holding one of the chemical products handled by the firm. He says chemical sales are on the way up at his store.

of course represent savings to the customer.

A bargaining policy is often followed. When a customer comes in with this question, "What can you get me this item for," that opens the bargaining door.

The amount of the discount depends largely on the discount and the amount involved. On high mark-ups larger discounts are earned, lower discounts being given in cases where goods are delivered. Premiums are sometimes given when bills are paid. This, of course, is a form of discount.

The right kind of selling is important, but buying merchandise is equally important, the store owner says.

Since the store picks up its own incoming merchandise, the owner often makes trips with the driver. When there are chances for good buys, Mr. Tiegen takes advantage of them. This is something the truck driver could not very well do.

Unfilled wants of customers are known, and the trips offer chances to fill these wants. Savings are passed along to the customer, which makes him happy. Buying is at times done direct from the factory, at savings.

Advertising is an important part of the business, the cost running to about \$1,000 a year. The direct method is used, hand bills being mailed to 800 customers bi-weekly.

Road signs are also used, primarily to attract the travelling public.

Promotions are staged four times a year and bolster up the advertising program. Drawings for prizes are offered at the events. In one case the winner ate 22 pancakes to rate the top prize.

A day in December is given over to a pancake festival, with a sandwich feed and lunch being scheduled in the spring. At this event, experts in fertilizer, feed and chemical problems are present to assist farmers.

At the summer event the young people in the area take over the coffee bar for a baked goods sale. Music is included. This, like other events, attracts the public. Anyone coming into the store is considered a potential customer for other goods also.

At Christmastime, Santa Claus flies in with candy, pop corn and balloons for the youngsters.

Promotional events bring in about 4,000 to 5,000 persons during the year. They get people into the habit of dropping into the store. "If they don't buy then, they probably will later," Mr. Tiegen feels.

Do the advertising and promotional programs pay out? "Absolutely," says Mr. Tiegen. "Our business has been going up every year. If you keep your name before the public, the public will think of you."

Mr. Tiegen makes a practice of discounting his bills. It pays off at

the rate of \$1,000 a year and that pays the bills for advertising and promotions.

Knowing what the customers want is a must in the business. Workers in the store are trained to keep records of who wants what. From there followups are made.

Keeping the record of the store at a high level is another policy followed here. A good reputation is as important as good health, the owner says.

The fertilizer and feed lines make up about one third of the store volume.

In the fertilizer department plans are afoot to build up sales. They are now increasing every year in the Smith-Douglass line. Coming up is a 200 ton bulk plant to be built on the owner's farm. This is expected to double the annual output, which at present is 500 tons a year.

More custom spreading and more bulk handling will be done. Fertilizer is delivered to farmers at a \$4 storage discount when ordered in the fall.

The chemical business has been making big strides and has a good future, according to Mr. Tiegen. A gross of \$2,500 in sales was made last year. "It is a good side line," Mr. Tiegen says, "but it is seasonal."

How about the coffee bar? The number of farmers in the area is on the decrease, Mr. Tiegen observes, but highway travellers, on the other hand, are on the increase. The bar brings people into the store, and people in the store are potential customers.

Personnel problems are few. "If a man makes a mistake I don't bawl him out, I make suggestions in a friendly manner," he says. "If a man wants a day off, he gets it, he will eventually return it. There are no clock watchers. All help is on a straight salary."

Mrs. Tiegen assists in the store, also, especially at the coffee bar. And a business man's best asset is his wife, Mr. Tiegen says.

Named Distributor

CEDAR RAPIDS, IOWA — Rivers Trailer & Equipment, Inc., Jacksonville, Fla., is a new distributor for Highway Equipment Co., Cedar Rapids. The firm will handle the New Leader line of spreaders.

Rivers Trailer & Equipment serves the upper northeastern quarter of Florida.

SPONSORS CONTEST

FRESNO, CAL.—The Agricultural Aircraft Assn., Inc., of California is sponsoring a new safety slogan contest in order to promote safety and precaution throughout the industry. The contest, open to all persons connected with the agricultural aircraft industry and residents of California, consists simply of the writing of a safety slogan for use by the industry.



GLENN O. TIEGEN, (left), owner of Tiegen's Shopping Center, discusses the fertilizer picture with a Smith-Douglass field man.

SOIL TEST

(Continued from page 9)

a 700-acre farm in this section has purchased over \$100,000 in fertilizer in a period of years, and he is getting excellent results from proper fertilization.

This firm also sells about 25% of its annual fertilizer volume in the fall. The management stresses the theme "Why Put It Off?" in its newspaper and direct mail advertising, as well as in field sales presentations. Attention is given to the pulling power of a fall discount price and the fact that cured fertilizer is available in large quantities. Also that the farmer who buys fertilizer in the fall for plowdown is saving himself valuable time which can be utilized for other farm work in spring.

The Walton Farm Supply and other fertilizer dealers in the region have good working relations with bankers. This means that bankers are willing to finance fall plow down fertilizer programs. This removes a sales barrier in many instances. Many bankers in the region have farms of their own and they are fully aware of the importance of fertilizer financing, reports Mr. Walton.

Another good sales point which the Walton firm uses in merchandising fertilizer is the comparative price increases on fertilizer and other commodities during the past few years. Fertilizer prices, Walton salesmen tell customers, have gone up only 8% in recent years while prices on most other items the farmer buys have gone up 25%. This shows many farmers that price-wise fertilizer today is a very good buy for them.

A very profitable feature for this firm has been the erection of a rock phosphate plant. It was built in 1952. A large storage tank holds four carloads of rock phosphate. Operations at the plant are usually heavy during spring, summer and fall. Walton Farm Supply has even spread rock phosphate for customers when there have been 5 in. of snow on the ground.

Practically 85% of the firm's fertilizer volume is in bulk form. There are four large storage bins in a special warehouse alongside the rock phosphate plant. The firm has two spreaders. A charge of 50¢ per acre is made for bulk spreading.

The firm has rail facilities. Potash usually comes in by rail, but many ingredients also come in by truck. It is interesting to note that the doors of the bulk warehouse have advertising signs painted on them. The copy helps call attention to the various products which Walton Farm Supply sells.

Another service which is offered to customers is a free soil test program. The management likes to have its men take the soil samples, for this means continued contact with the farmer, thus securing a better chance for fertilizer sales. It also means samples are taken carefully.

Besides 14-14-14 for corn land, the firm also sells a lot of 6-24-24 for corn and also 6-40-0 with aldrin. Farmers who raise oats like 6-24-24, while pasture land here calls for 14-14-14, or 16-8-8, or just straight nitrogen. Pasture in timber appears to respond best to straight nitrogen.

The firm does considerable educational work on fertilizer in this area. It holds several meetings yearly with as many as 100 farmers attending each. Such programs usually consist of movies and talks, followed by question and answer periods. Refreshments are served.

A very progressive vo-ag teacher in Mendota is the spark plug for a series of annual fertilizer, feed and other farm topic meetings. He invites various companies to help him put on such meetings and share the costs. Walton Farm Supply is one of the participants in some of these meetings. Farmers and vo-ag students attend in large numbers.

In order to secure other income during various seasons of the year, Walton Farm Supply also stocks and sells outboard motors, grain bins, hog shelters, farm chemicals and spray equipment. The company also wholesales some farm chemicals and equipment.

While the office and store building are only two years old, the rock phosphate plant has been located on the property for seven years. The office and store are done in redwood and there is excellent lighting.

A 30,000 lb. capacity Fairbanks scale is located directly outside the office area to permit quick and accurate weighing.

OVER THE COUNTER

(Continued from page 9)

handled by banks. This is where it should be handled.

2. Control inventory—keep money working: Money is an essential commodity in a retailer's business, and money is required for (1) investment in plant and equipment, (2) inventory, (3) accounts receivable, (4) bank account.

You can make money on a shorter margin if you keep it rolling. Tie up as little as possible over a long period. Money put into plant and equipment is essential for good business, but money spent this way is hard to get back. Depreciate equipment accordingly. Money in inventory should be turned within 30 days if possible. Money in accounts receivable should also be kept revolving rapidly. Finally, a substantial working balance in the bank will give a dealer a feeling of satisfaction and security, and tend to help a dealer make wiser decisions than if he is faced with a large debt.

3. Advertise to invite business: Judicious advertising goes hand in hand with business success. The only way customers can know about a dealer's services is when they are told. When you tell them effectively you're advertising.

There is an old saying that business goes where it is invited, and stays where it is well treated. Most good customers don't thrust business upon a dealer. A dealer has to ask for it. Regular mailings, monthly or even more frequently, are a mighty fine way of extending an invitation to customers and prospects. Word of mouth advertising is effective. When customers tell with pride about good service rendered, it sells feed. Weekly newspaper, radio and TV, farm meetings, personal contacts, all can be effective. A farm meeting of new and old friends with a program of interest can pay out big over the years.

4. Maintain farm contacts with farm calls: A dealer's best customers do not spend much time in a dealer's store. They are busy on the farm and in the feedlot and that is where to see them. It pays off in a big way to do this.

An average farmer customer is a sociable, but independent businessman who is very much interested in, and very proud of, his operation. He has to meet many problems and constantly changing conditions. He continually wonders about the weather, the trend of the markets, and how to adjust his operations to make the most money.

5. Tomorrow's dealer must train

Arkansas County Declares War on Lone Star Tick

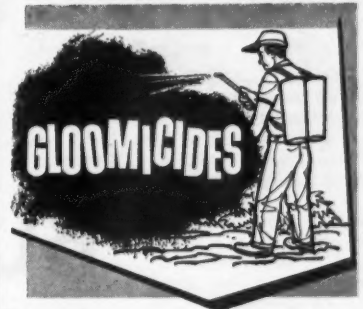
MELBOURNE, ARK.—Izard County farmers, in an effort to increase over-all profits, have declared war on an old enemy, the Lone Star tick.

The county Farm Bureau has constructed a portable high-pressure spraying machine for custom use by livestock owners. Dealers report a heavy run on insecticides since the machine was put into use.

Jack Justus, county agent, who administers the program, said he has a heavy schedule of advance bookings for the use of the spray rig. A charge of 10¢ per head is made to cover the cost of the insecticides and labor when the machine is used on a "custom" basis.

The success of the spray program has caused a large number of cattlemen to purchase or construct small spray units of their own, eliminating earlier delays in the use of the custom machine.

Izard is one of 17 counties in Arkansas where agricultural officials consider ticks to be a major problem for both man and animal. In the past, losses have approached \$100,000 annually, Mr. Justus said.



Two little boys were playing in a train. The conductor said the children must behave or he would make trouble. The boys' father said, "You don't know what trouble is. My wife's in the hospital. I am on my way to see my sick mother-in-law; my daughter has had triplets; one of the boys has just smashed his finger and the other has chewed up our tickets. To top it all off, we are on the wrong train."

In a Sunday school class discussion of temperance, one mother related that she learned how well she had taught her children the evil of liquor when her youngest, a TV cowboy fan, brought her a picture he had drawn of a cowboy in a saloon.

"But don't worry, Mother," he quickly assured her, "he isn't going to drink anything. He just went in there to shoot a man."

When a bride walks into a church, are these words running through her mind: "Aisle, altar, hymn"?

An officer had dictated a letter to the young secretary in which the words "intelligence officer" were used twice. The secretary, not used to army titles, typed "intelligent officer."

The officer who had dictated the letter roared at the little secretary: "Look at this! Whoever heard of an intelligent officer!"

The very small boy came home dejectedly from his first day at school. "Ain't goin' tomorrow," he sputtered. "Why not, dear?" his mother asked. "Well, I can't read, and I can't write, and the teacher won't let me talk, so what's the use?"

An American boarded the train in Munich. The only other passenger in the compartment was an elderly woman. The American sat at the window, looked out and chewed gum. After a while the woman leaned over and said in a friendly tone, "It's nice of you to try to converse with me, but I'm stone deaf."

A government crop inspector visited a Kentucky farm and began asking questions:

"Do you people around here have trouble with insects getting in your corn?"

"We sure do," said the farmer, "but we jes' fishes them out an' drinks it anyhow."

He was driving the wrong way on a one-way street after "just two drinks with the boys" when a cop stopped him and asked, "Where do you think you're going?" "I don't know," was the reply, "but I must be late—everybody's comin' back."

New circus actress: "You know, sir, this is my first job in a circus. You'd better tell me what to do to keep me from making mistakes."

Manager: "Well, don't make a costume change before the bearded lady."

help properly with regular meetings:

Every person in a farm store can be a big asset if he is well informed on farm matters and can learn even a few simple principles of selling. A disinterested or poorly informed employee can drive away more business than you can bring back with an attractive store. That's why it is so important to allot definite and regular time to properly train employees to be of real assistance. This training will have two good results for you:

- It will make your employees more interested in your business and better satisfied.
- It will do you a lot of good with your customers not only in sales, but in prestige as well.

A well-trained force can be a big factor in your success.

6. Community cooperation: A retail farm supply business isn't just an isolated island in a community. It is an integral part of that community and you rise or fall, to a large extent, with the prosperity of the surrounding territory. Consequently, it pays to be a booster in your community and community activities. Good citizenship is a part of being a good businessman. It pays to be interested in the boys and girls of today, since they are our citizens and prospective customers of tomorrow. It is important to help promote 4-H club work, Future Farmers of America, high school agricultural classes, and every boy and girl in every worthwhile farm activity. Small prizes judiciously placed, help in this work but after all, the biggest thing a dealer can give is personal interest and encouragement.

SWEET TIME IN LOUISIANA

BATON ROUGE, LA.—Louisiana's sugar cane crop may exceed the record of 491,000 tons set back in 1938, if the weather and insects do not get out of hand. This year's crop is still growing fast, despite heavy rains and grass choked fields. Some fields have become so muddy that farmers are being handicapped in cultivating them.

Chief insects are cane borers and nutria, both of which are numerous and have not been stopped, despite the heavy toll taken by traps, guns and other means.

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board

White-Fringed Beetle



How to Identify

The beetles are dark grey in color and their bodies are covered with thick short hairs. Length of the bug is usually less than a half inch. The wing covers, or elytra, are grown together so the insect cannot fly, but it is able to crawl and can travel a half mile or more over a period of time. The edges of the elytra are fringed with white, giving the insect its name.

Habits of White-Fringed Beetle

During most of the summer (usually May to August), adult beetles emerge and begin to hunt food plants. No males of the species have been found and the females reproduce parthenogenetically. When the female is but a dozen days old, she begins to lay eggs numbering in the hundreds. The eggs are light colored, oval in shape and are deposited as many as 60 to the cluster, in slightly sticky masses so they adhere to plant stems, stones and other objects near the ground. These egg masses are difficult to observe, since soil clings to them. From two weeks to two months are required for hatching, depending upon the temperature. Larvae feed below ground, doing damage to the lower parts of stems and taproots of many plants. Usually,

there is but one generation of white-fringed beetle in a single season.

Damage Done by White-Fringed Beetle

These bugs attack a wide variety of crops, the number of susceptible species of plants being estimated in the hundreds. Much of the damage is done by the grub stage of the insect, when it attacks roots of cotton, tobacco, peanuts, corn, sugarcane, sweetpotatoes, clover and other field crops. (The U.S. Department of Agriculture on April 14, 1955, extended the white-fringed beetle regulated areas to include additional parts of Alabama and Tennessee. A total of eight states is included in the quarantine against the pest.)

Control of White-Fringed Beetle

Various methods suggested include both the use of chemical toxicants and also physical barriers to stop migrations. In the latter case, ditches may be dug with vertical sides, making it impossible for the beetles to get beyond the area. Thus trapped, the bugs may be killed with oil. A number of insecticides are mentioned for control of the insect.

REPORT

(Continued from page 1)

productive natural forest soils. Field responses over a wide range of soils have been pronounced. These responses have been in terms of accelerated growth and wood production as well as seed crop.

"Diagnostic work has indicated that both foliage and soil analysis can be used to advantage in forestry and each has specific areas of application. Greenhouse pot cultures of forest soils have also been useful in forest tree nutrition studies. Nutritional deficiency symptoms produced in the greenhouse in forest trees have also been observed in the field.

"A few forest companies and some fertilizer people are now supporting work in this field. As with most initial programs of this type, the total effort is rather small in comparison to the unknowns."

He said that research is particularly needed in the following fields:

1. Total nutrient needs of forest trees during a rotation.

2. The effect of changing management practices, particularly utilization, on forest soil fertility status.

3. Economic studies on fertilizer application to forest and other wild lands. Efficient and economical means of fertilizer distribution over these lands need to be worked out.

4. Elemental cycles in forest soils and forest crops. The distribution of applied elements needs to be studied. How much of the element is taken up, how much is lost, and how the applied element enters into the natural cycle are all questions that must be answered.

5. Further studies on diagnostic techniques for forest trees are necessary. Foliage analysis on all forest tree species should be accumulated and related to soil analysis and fertilizer response.

6. Fertilizer response in relation to natural productivity levels. It is particularly important to know which forest sites can be economically treated.

The behavior of water-soluble phosphate fertilizers in soils was described in a talk by Willard Lindsay, Tennessee Valley Authority, Wilson Dam, Ala. He explained that fertilizer phosphorus does not distribute throughout the soil, but influences only a small fraction of the soil volume. "Its availability to plants is determined by both the volume of soil influenced by the fertilizer and the concentration of phosphorus maintained in these soil volumes," he said.

"When granules of water-soluble phosphate fertilizers as diammonium, monoammonium, ordinary super- or concentrated superphosphate are placed in soil a saturated solution forms on the crystal surfaces. The vapor pressure of these concentrated solutions is less than 90% that of water. As a result, water moves in fairly rapidly and the dissolution is usually completed within a day or two.

"The concentrated solution moves out and forms a wetted zone around the granule. Within this zone the fertilizer phosphorus is gradually transformed into more insoluble reaction products. It is these reaction products, and their subsequent transition products, that determine the phosphate level in the soil zone influenced by the fertilizer.

"Through recent studies, many of these more insoluble phosphate reaction products have been isolated, and their properties have been determined. Among these products were found dicalcium phosphate, octocalcium phosphate, taranakite, struvite, and other phosphate minerals. The results of these findings are discussed in terms of how soil properties, associated fertilizer salts, time of re-

actions, and other factors may influence the availability of phosphorus in different water-soluble phosphorus sources."

Although generally good returns are obtained from fertilizer application crops in the Northwestern states, some farmers fail to realize full value from the fertilizer they use, according to W. P. Mortensen, Western Washington Experiment Station, Puyallup, Wash. He told the group that the causes for this less-than-satisfactory performance may be due to any one or more of four reasons:

1. Application of fertilizer at an improper rate.

2. Use of fertilizer that is of an improper ratio or kind for the crop.

3. Application by an inefficient method.

4. Application at the wrong time. He pointed out that if the above factors were corrected, the farmer's net return would be raised and he would then be encouraged to purchase greater amounts of plant food the next year.

RUSSIA

(Continued from page 1)

ision, ARS, Washington; Theodore B. Davich, in charge of Texas laboratory, entomology research division, ARS, College Station, Texas; Herbert L. Haller, ARS, Washington; Halbert M. Harris, department of zoology and entomology, Iowa State University, Ames, Iowa; Carl B. Hufaker, University of California, Albany, Calif.; P. W. Oman, entomology research division, ARS, Plant Industry Station, Beltsville, Md. and John B. Osmun, department of entomology, Purdue University, Lafayette, Ind.

New Mexico Market
Official Retires

UNIVERSITY PARK, N.M.—William A. Wunsch has retired after 31 years with New Mexico State University, 18 of them as supervisor of the Fruit and Vegetable Standardization Service of the State Department of Agriculture.

He has been called "the father of New Mexico's fruit and vegetable industry." During his time of service, the state's grano onion crop has grown from practically zero to 900 cars a year; lettuce shipments from the Mesilla Valley alone range up to 900 cars; and carrot shipments have spiraled from 30 cars to more than 1,700 annually. About 200 cars of fruit, mostly apples, are sold to out-of-state markets each year. The farm value of fruits and vegetables grown in the state is about \$8 million.

Mr. Wunsch is president of the National Association of Marketing Officials.

Monsanto's "Red" Emm says:

HERE'S A WEED-KILLER LINE
THAT SELLS ITSELF ...

The display, the product,
and the container —
all of them sell
for you

This display answers your customers' questions. It's a full size, life like reproduction of Monsanto's "Red" Emm.

Your customer just dials the crop selector to find out what to use for his particular weed or brush problem.

"Red" saves you time...and tells your customers what weed killers to buy!

Quality products always get repeat sales...and farmers know they can depend on the Monsanto Brand. Seven weed killers, six brush killers and two new spray-as-you-plant weed killers... Radox® and Vegadex® ...give you a full line to stock!

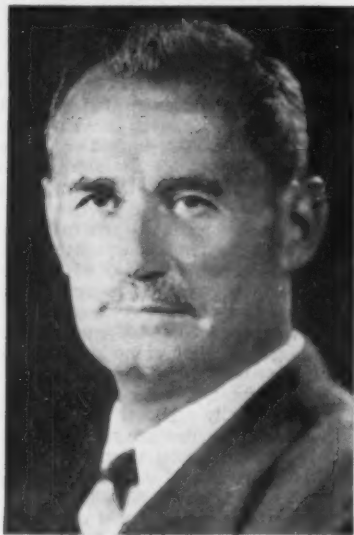
dial your
weed
problem,
neighbor!

The containers "tell" and "sell." With every Monsanto can—including the new 5 gallon, "easy-flow" spout-top can—your customers get complete, step-by-step directions. The special packet tells the farmer in plain language everything he needs to know!

P.S. Let me tell you more about how the Monsanto line can help you sell this year; Mail the coupon today!

MONSANTO CHEMICAL COMPANY,
Organic Chemicals Division,
Farm Chemicals Department, St. Louis 66, Mo.
Please send me more information on the
Monsanto Weed and Brush Killer line.

Name _____
Firm _____
Address _____
City or County _____ State _____



S. A. Bennett

NEW OFFICERS—S. A. Bennett, president, Bennett Industries, Inc., of Peotone, Ill., announced the election of additional company officers as follows: A. J. Gasbarra, executive vice president, has been elected a director; L. A. Istel has been elected vice president and assistant general manager; W. R. Chapman, vice president and general manager of structural division; J. B. Drever, assistant secretary, controller and assistant to the president; R. R. Ernst, vice president and sales manager of container division; W. R. Parsons, assistant secretary, sales manager and chief engineer of structural division; H. F. LePan was reelected vice president, director of sales, container division, and K. F. Hauert was reelected vice president.

Stauffer Introduces New Fruit, Vegetable Dip

NEW YORK—A fungicidal dip or wash to prevent the development of various rots and molds on fruits and vegetables is now being marketed by Stauffer Chemical Co. Called Captan 80 Spray-Dip, the product is a micro-fine wettable powder containing 80% Captan.

The material is applied as a spray or in wash tanks during normal packing-house operations.

Captan 80 Spray-Dip, according to Stauffer, protects the treated fruits or vegetables from attack by Rhizopus, Botrytis and Gleosporium rots which commonly cause severe losses in storage or in transit, or even on the grocer's shelf.

Main crops on which the product may be used are apples, apricots, cantaloupes, cherries, cucumbers, grapefruit, lemons, limes, mangoes, nectarines, onions (green and bulb), oranges, peaches, pears, potatoes, tangelos and tangerines.

New Oregon Distribution Center Is Announced

SCIO, ORE.—Ward Nation, farmer living north of here, announces the opening of a new fertilizer distribution center for North Linn County at West Scio in the former site of West Scio Re-Milling Co. Both liquid and dry fertilizer will be handled. A huge tank is being erected and other facilities are being arranged.

Mr. Nation, who has operated a similar sales center at Aumsville for two years, reports that his brother Frank will be at the Scio location.

ELECTED PRESIDENT

PHOENIX, ARIZ.—Archie M. Kroloff, president of the Advance Seed & Grain Co. here, and representative of the seed industry on the board of the Arizona Crop Improvement Assn., was elected president of the Pacific Seedmen's Assn., during the group's annual convention in Sun Valley, Idaho.

New England Fertilizer Meeting Expanded To Northeast Region

WASHINGTON—The National Plant Food Institute's New England Fertilizer Conference is being broadened this year to cover the entire Northeastern region with the advent of the First Annual Northeastern Fertilizer Conference.

In the past the NPFI session was held in New Hampshire and attracted representatives mostly from the New England States.

This year's initial Northeastern conference will be held in the Biltmore Hotel in New York City on Sept. 24-25.

The program opens at 1:30 p.m. on Sept. 24. This half-day session will be devoted to a report of NPFI activities in the northeast. E. R. Jones, of the Hubbard-Hall Chemical Co. and a member of the NPFI board of directors, will preside.

Program emphasis on Sept. 25 will be placed on forage production possibilities in the northeast, with T. R. Cox, of American Cyanamid Co. and chairman of NPFI's Northeast Research and Education Committee, presiding.

Room reservations are to be made directly with the Biltmore Hotel. Reservation cards may be obtained from the hotel or from Dr. W. H. Garman, northeastern regional director, at NPFI Washington headquarters.

Iowa State Journalist Wins Communications Award

GAINESVILLE, FLA.—Karl Robert Kern, assistant editor, information service, Iowa State College at Ames, was awarded the "Agricultural Communications Award" sponsored by the American Association of Agricultural College Editors (AAACE) and the National Plant Food Institute, at a special luncheon ceremony July 15 at the University of Florida.

Announcement of the award was made by O. B. Copeland, head, division of agricultural information, North Carolina State College, Raleigh, president of AAACE, in connection with the 43rd annual convention of the association at the University of Florida.

Louis H. Wilson, secretary and director of information for NPFI, presented to Mr. Kern a scroll signed by the national judges, together with a check for \$500 to be used for advanced professional training in agricultural communications.

Guthion Registered for Use Against Potato Insects

KANSAS CITY—Guthion, an insecticide used for controlling insects on deciduous fruits and cotton, has now been registered by the U.S. Department of Agriculture for use on potatoes.

The manufacturer, Chemagro Corp., Kansas City, recommends the use of 1½ to 2½ pints per acre for control of aphids and Colorado potato beetles. Guthion is available in both a 25% wettable powder and a spray concentrate formulation.

Asks to Liquidate Fertilizer Plant

OKLAHOMA CITY—Nichols Seed & Fertilizer Co. here has asked the federal court for permission to liquidate part of its operation to pay off 50% of claims of creditors. The company's assets are listed at \$1,154,526 with debts totaling \$997,492. Earl E. Nichols, president of the firm, proposes to sell the company's farm fertilizer plant near Wheatland, Okla. Mr. Nichols said that "the company's allied operation—sale of farm seeds, agricultural chemicals and related items—is showing a satisfactory profit and could be expected in time to pay off the remaining debts."

Montana Plant Food Group Hears Latest Soil, Fertilizer Research Findings

CHICO HOT SPRINGS, MONT.—Members of the Montana Plant Food Assn. at their second annual summer convention heard about the latest soil and fertilizer research by a team from Montana State College.

Harry Kittams, assistant soil scientist at Montana State College, reported that fertility trials on native hay land produced economic yield responses in all but one location of the 13 experimental trials. He pointed out that wherever the phosphate supply of the soil was low, the use of nitrogen and phosphate together resulted in the greatest net profit per acre.

"Stands containing a large percentage of grass responded best to nitrogen applications, but grass legume stands responded best to both nitrogen and phosphorus, particularly where the soil phosphate was low," Mr. Kittams said.

Murray Klages, assistant soil scientist at the college, said that plans to move the soil testing lab from the chemistry department into the soils department were just about completed.

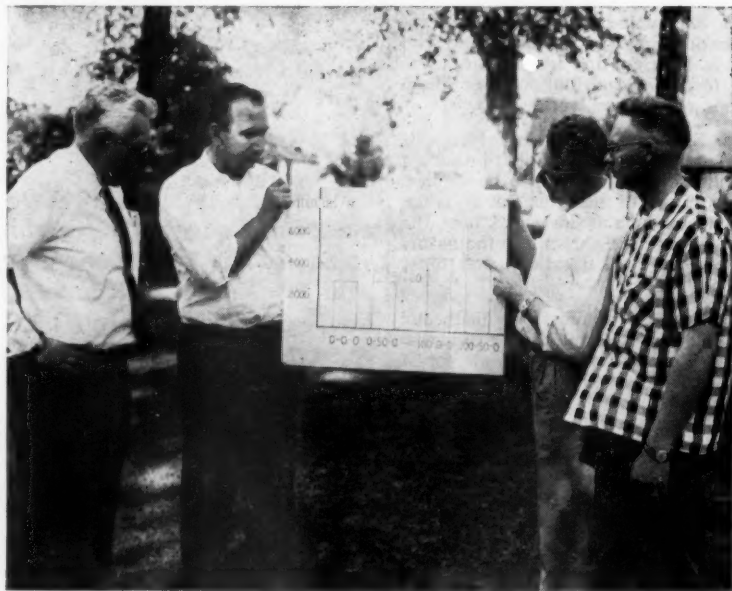
"We hope that this new soil testing

set-up will enable us to give better service to the farmers in the state and result in a closer relationship between research and field application of the data," he said. "We have a lot to learn about the fertility status of Montana soils and an intensified soil testing program should help us to find out where the main fertility problems are located."

Other speakers from Montana State College included Dr. J. C. Hide, John Reuss and Bernard L. Brown.

F. Todd Tremblay, Pacific Northwest regional director of the National Plant Food Institute, spoke to the group about banker-dealer relationships.

"The smart fertilizer dealer soon finds out that the banker can be of substantial assistance in getting the farmer on the right track as far as a fertility program is concerned," he said. "The banker is usually ready, willing and able to push the college program of soil fertility, but someone must first approach him with the dollars and cents aspect of such a program. This is the job of the extension service, the dealer, and NPFI."



GEORGE MASON (left), president of the Montana Plant Food Assn., and **Warren Stensland**, secretary-treasurer (right), discuss yield responses of native hay to fertilizer treatments with **Bernie Brown**, Montana State College extension soils specialist, and **Harry Kittams**, assistant soil scientist of MSC. The fertility research on native hays was supported by a grant from the National Plant Food Institute.

Potato Wireworm Controlled in Tests

WASHINGTON—Control of the southern potato wireworm, a major insect pest in the early-season potato producing areas of the Southeast, has been experimentally achieved with several organic chemical insecticides, the U.S. Department of Agriculture has reported.

Diazinon, ethylene dibromide, parathion, Thimet and two experimental materials—AC 18, 133 and SD 4402—gave 82 to 96% reduction of the pests in field plot tests conducted by entomologists of USDA's Agricultural Research Service in cooperation with the South Carolina Agricultural Experiment Station at Charleston.

Named Technical Director

OSSINING, N.Y.—Henry Gould has been named technical director of Gallowhur Chemical Corp., Ossining.

Mr. Gould, who joined the company last year as chief chemist, is a graduate of City College of New York, and carried out postgraduate research in chemistry at Brooklyn Polytechnic Institute. He has had more than 20 years experience in research and development in the organic and agricultural chemicals industries.

Named District Manager

CLIFTON, N.J.—The appointment of A. E. (Gene) Stephens as district manager for Colorado, covering the entire state of Colorado and the southern half of Wyoming, was announced here by Richardson Scale Co., manufacturer of automatic weighing machinery for grain, sugar, seeds, chemical and other industries.

Mr. Stephens has served Richardson Scale Co. for a number of years in a sales and service capacity at Wichita and is now covering the new territory which was formerly covered under an agency arrangement concluded at the end of 1958.

\$30,000 APPROPRIATION

MAYVILLE, N.Y.—A. Bruce Manley, Fredonia assemblyman, has been assured of a \$30,000 appropriation for Chautauqua Lake weed control in the governor's supplemental budget. B. A. Schauer, chairman of the Chautauqua Lake Assn. weed committee, said if the funds are available, at least part of them will be spent for an extensive weed control program to start in May. The project, to cost about \$24,000, involves application of sodium arsenite spray to 925 acres of lake surface.

PATENTS and TRADEMARKS

2,893,855

N-1-Naphthylchlorophthalamide Herbicides. Patent issued July 7, 1959, to Allen E. Smith, Oxford, and Albert W. Feldman, New Haven, Conn., assignors to U. S. Rubber Co., New York. A herbicidal composition comprising an aqueous suspension of N-1-naphthylmonochlorophthalamide acid.

2,893,856

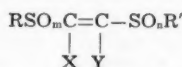
Defoliating Compositions. Patent issued July 7, 1959, to Philip C. Hamm, Webster Groves, Mo., assignor to Monsanto Chemical Co., St. Louis. The method of defoliation which comprises applying to foliage in concentration sufficient to effect defoliation, a member of the group consisting of ethyl p-anisylthionocarbamate, ethyl p-phenethylthionocarbamate, ethyl p-tolylthionocarbamate, methyl phenylthionocarbamate and ethyl phenylthionocarbamate.

2,893,857

Aminolead Compound and Herbicide Composition Containing Same. Patent issued July 7, 1959, to David O. De Pree, Royal Oak, Mich., assignor to Ethyl Corp., New York. A herbicidally active composition consisting essentially of at least about 0.1% by weight of triethyl-N-sec-butylaminolead, a liquid hydrocarbon carrier therefor, said hydrocarbon having a boiling range below the kerosene distillation range and as a non-ionic dispersing agent, a polyethylene glycol having a molecular weight of above 1200 in amount sufficient to assist in dispersing said triethyl-N-sec-butylaminolead.

2,893,911

1, 2, Bis (Alkylsulfoxy) -1, 2-Dihaloethylenes and Fungicidal Compositions Comprising Them. Patent issued July 7, 1959, to Maynard S. Raasch, Wilmington, Del., assignor to E. I. du Pont de Nemours & Co., Inc., Wilmington. A compound of the formula



wherein the indicated oxygen atoms are attached only to the indicated sulfur atoms which sulfur atoms otherwise are attached only to carbon, R and R' are each an alkyl radical having from 1 to 12 carbon atoms, m and n are each an integer up to 2, and X and Y are each a halogen.

2,892,696

Method of Suppressing Plant Growth with 2,2,3-Trichloropropionitrile. Patent issued June 30, 1959 to Keith C. Barrons, Midland, Mich., assignor to the Dow Chemical Co., Midland, Mich. A method for the selective suppression of the germinant seeds and emerging seedlings of narrow leaved grasses in soil planted with broad leaved plants which comprises distributing 2,2,3-trichloropropionitrile in such soil in the amount of from 4 to 82 parts by weight per million parts of weight of soil.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

Buga-Lawn, in hand-drawn letters, for insecticide. Filed July 28, 1958, by Mock Seed Co., Pittsburgh, Pa. First use May 1, 1958.

Chlorazine, in capital letters, for herbicides. Filed Nov. 1, 1957, by Geigy Chemical Corp., Ardsley, N.Y. First use Oct. 11, 1957.

Design, drawing of house and lawn with the words Mock's Superturf Buga-Lawn, for insecticide. Filed July 28, 1958, by Mock Seed Co., Pittsburgh, Pa. First use May 1, 1958.

Design, drawing of house and lawn with the words Mock's Superturf Craba-Lawn, for weed exterminator. Filed July 28, 1958, by Mock Seed Co., Pittsburgh, Pa. First use May 1, 1958.

Pyrazoxon, in capital letters, for insecticide ingredients. Filed Aug. 14, 1958, by Geigy Chemical Corp., Ardsley, N.Y. First use June 25, 1958.

Mesulfane, in capital letters, for fungicide ingredients. Filed Aug. 14, 1958, by Geigy Chemical Corp., Ardsley, N.Y. First use June 25, 1958.

Dimetan, in capital letters, for fungicide ingredients. Filed Aug. 14, 1958, by Geigy Chemical Corp., Ardsley, N.Y. First use June 25, 1958.

Phensulfane, in capital letters, for fungicide ingredients. Filed Sept. 29, 1958, by Geigy Chemical Corp., Ardsley, N.Y. First use Aug. 6, 1958.

Heptazine, in capital letters, for herbicides. Filed Sept. 29, 1958, by Geigy Chemical Corp., Ardsley, N.Y. First use Aug. 6, 1958.

K. O., in capital letters, for chemical for killing crab grass or other weeds. Filed April 14, 1958, by Vaughan's Seed Co., Chicago. First use on or about April 2, 1957.

Turf Saver, in capital letters, for insecticides. Filed June 27, 1958, by Garfield Williamson, Inc., Jersey City, N. J. First use Oct. 2, 1954.

Weed Control Groups Invite Papers for Meeting

WINNIPEG—Invitations to submit papers for the Joint Meeting of the Western Canadian and North Central Weed Control Conference, which is to be held Dec. 8-10 in Winnipeg, were made by L. Holm, department of horticulture, University of Wisconsin, and chairman of the program committee.

The program will include both general and sectional meetings and there will be discussions in all phases of weed control.

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fits of UAL begin. UAL provides nitrogen in both the urea and ammonium form—nitrogen that becomes available at a rate closely paralleling plant requirements. Nitrogen from Du Pont UAL is also leach-resistant; remains in the root zone long after other forms have been exhausted.

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Georgia Bank Surveys District Dealers for Credit Information

EDITOR'S NOTE: The accompanying article is reprinted from the Bankers Farm Bulletin of the Federal Reserve Bank of Atlanta, Ga., June, 1959, issue.

Farmers in the South have long used merchant or trade credit for obtaining operating supplies. In past years the fertilizer industry has been a major supplier of trade credit and other services to farmers. Although they often found such credit costly, they have obtained some benefits from it. For one thing, it has enabled them to better meet their need for operating capital, which has always been deficient. By using merchant credit, farmers also have obtained other services from the merchants they trade with.

Farmers still find their requirements for operating capital outpacing their accumulation of it. This development has led us to inquire about merchant credit now being supplied farmers by the fertilizer industry which provides them with a major item for production. How important is trade credit in the fertilizer industry? Why do fertilizer manufacturers extend trade credit? How do they provide it? Why do farmers now use trade credit for buying fertilizer? Can bankers in both rural areas and cities lend farmers more

of the funds they need for buying fertilizer? Is use of merchant credit for financing fertilizer on the upswing?

To obtain answers to such questions, this bank surveyed manufacturers of mixed fertilizer in district states in May. We report our findings in this article. They are based largely on data from 44 firms which manufacture at least 50% of the fertilizer consumed in the Sixth District.

Financing fertilizer sales with trade credit is an important, widespread practice in the mixed fertilizer industry. Ninety-eight percent of the fertilizer plants responding to our survey make credit sales. At the time of our survey they had from 40 to 6,000 accounts; half of the plants had 280 accounts or more. At small and medium-size plants—10,000 tons to 25,000 tons capacity per year—the accounts were largely farmers. At plants owned by large regional and national firms, the accounts included farmers, agents, and wholesale distributors. Credit sales totaled more than 80% of all sales for four-fifths of the respondents. Open-book credit, which most of them give freely, accounted for at least 75% of the credit sales at four-fifths of the plants.

Manufacturers extend trade credit for fertilizer in two major ways: The small plants usually provide credit directly to farmers in their local

trade area. Large regional firms sell principally through consignment agents. These agents establish credit lines and terms for farmers, sell the fertilizer, distribute it to farmers during the planting season and charge it to their accounts, guarantee payment, supervise the accounts and collect them. Throughout this merchandising procedure, the manufacturer holds title to the fertilizer and/or the farmer's receivables. Meanwhile, both the agent and the farmer are liable for the debt. By this method manufacturers of mixed fertilizer control their credit extensions as well as the prices charged for their products. Few firms, small or large, sell fertilizer to wholesale distributors trading on their own accounts.

Most firms responding in the survey said they granted trade credit because they can increase their sales with it, because competitors do it and because farmers want the credit service. With trade credit, of course, manufacturers can earn income from increased sales and from interest charges which exceed their total costs for the credit service rendered. Trade credit, therefore, becomes a key element in their merchandising programs.

Although manufacturers use trade credit to increase their sales as such, another ultimate goal is to achieve minimum costs through high volume operations. This has special importance to them because crop production is extremely seasonal: Three-fourths of the fertilizer produced is consumed between January and June. With plant capacity excessive for fall operations, a firm's capital costs per ton can go very high if spring tonnage is low. To the extent that a firm can use trade credit to build tonnage, to achieve lower costs per unit, and to reflect them in lower sales prices, all parties benefit.

Finally, farmers prefer to use trade credit for buying fertilizer: It is easily obtained for crop production; it supplements their operating capital; and sometimes their creditors provide them with a marketing service such as ginning cotton.

Fertilizer manufacturers obtain funds to finance their trade credit from several sources. Most of the respondents said they finance their credit sales largely from internal funds; several specifically said that they can profitably use their own working capital for trade credit. Manufacturers also use credit from others to supplement their internal sources of funds. They obtain some trade credit from their suppliers, whose terms are usually 30 days net. Some suppliers give a one-percent discount in 15 days, however, which is a strong incentive for prompt payment because it amounts to 24% interest per year. In many cases the discount policy is designed principally for equalizing prices between competing plants or otherwise meeting a competitor's price structure. Small- and medium-size plants rely partially on commercial banks for the short-term financing needed for carrying their inventory and accounts receivable through their peak season. Finally, cotton ginners financing fertilizer for farmers sometimes obtain funds from cotton-oil mills seeking the grower's cottonseed. The ginners in turn use these advances to pay the fertilizer companies.

Trade credit for fertilizer is similar in some respects to bank credit. Why, then, could bankers not finance part of the fertilizer sold with trade credit? Some firms responding in the survey said bankers could do it, claiming that in many instances bank financing would actually be more advantageous to all concerned.

Terms for trade credit used to finance fertilizer sales are invariably short, and short-term credit is the type of credit bankers like to grant. Few firms reported accounts outstanding over six months

old; half of the firms balance most of their accounts in three months. Most manufacturers like to balance their accounts twice a year—in early summer and mid-fall. In June, these manufacturers expect full payment on accounts established from March through May. Subsequent credit sales and carry-over credits are settled in October, November or December. Settlement dates are less common in Florida where credit to citrus growers may extend for a year and advances for vegetables such as beans and celery are repaid as the specific crop is harvested.

Manufacturers tend to grant short-term terms on direct sales to farmers than on sales through consignment agents; wholesale distributors also obtain short terms. Direct farm accounts at most firms were set up for three months or less, and wholesale distributors typically received 30-day credit. Some companies, however, let distributor accounts run six, nine or even 12 months, although they usually secure such accounts with interest-bearing notes.

Farmers buying fertilizer "on time" may pay higher interest rates for the funds they use. Among reporting firms the average gross margin in 1959 between cash and time prices for superphosphate was \$1.54 per ton; it was \$2.69 per ton for mixed fertilizer. At \$2.69 per ton for the typical three-month term, the annual rate of interest is 26%. The "time price" is usually used for sales on extended credit terms, that is, terms beyond the settlement dates or the normal period for open accounts. Ordinarily the time price covers interest charges, bookkeeping and collection costs, and a reserve for losses.

Not all farmers who are granted extended terms pay high rates, and they would not necessarily gain by using bank credit. Competition in the fertilizer industry forces many firms to give more liberal terms. They may give a discount for cash; they may give 60 or 90 days net terms instead of the stipulated 30 days net; they may not charge the time price for extended terms. Judging from data from the firms surveyed, there is less and less adherence to settlement dates and a time price; there is more

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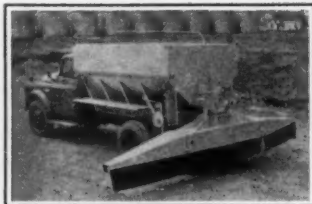


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Trade Credit Practices of Fertilizer Manufacturers Sixth Federal Reserve District States, May, 1959

Credit sales, per cent of plants reporting	98
Sales for cash at time of sale, per cent of plants reporting	
Less than 20% sales for cash	83
Less than 50% sales for cash	89
Reasons for extending credit, number of plants reporting	
To obtain more sales	24
Competitors do it	37
Customers expect it	29
Farmers cannot obtain financing from lenders	13
Changes in trade credit to farmers in the last five years, number of plants reporting	
Increased	27
Held steady	16
Decreased	4
Types of credit sales, number of plants reporting	
75% or more open-book credit sales	
Direct to farmers	40
Consignment agent	13
Distributor (on own account)	11
75% or more secured sales	
Direct to farmers	9
Consignment agent	4
Distributor (on own account)	2
Gross margin between cash and time price, average dollars per ton	
Superphosphate	1.54
Mixed fertilizer	2.69
Other fertilizer materials	3.25
Interest rate on extended terms or carry-over balances, per cent per year, number of plants reporting	
4%	1
5%	5
6%	37
7%	1
8%	13
Proportion of credit sales repaid in specific period, number of plants reporting	
70% within 90 days	32
70% within 180 days	25
Proportion of funds from commercial banks, number of plants reporting	
Under 20%	1
20-49%	17
50-99%	8
100%	6
Duration of present credit policies, number of plants reporting	
3 years	3
5 years	7
More than 5 years	42

and more open-book credit on a cash basis from planting to harvest.

Fertilizer manufacturers obtain repayments on their advances in about the same way that banks do. First, farmers often are asked to repay the advances when they harvest their crops or when they borrow from banks at planting time. Second, manufacturers obtain payment principally in cash and in single payments; some firms, however, accept irregular instalment payments. When accounts become overdue, fertilizer firms generally prefer to continue them as open accounts and step up their collection activity. Some firms, however, seek additional security: personal notes when the initial terms were not long, and chattel and real-estate mortgages for the longer-term notes. The notes also may carry a stated interest rate of 6 to 8% per year. Many firms only call in a collection agency or lawyer to settle an overdue account as a last resort; some never do.

The loss ratio for fertilizer accounts would be acceptable to bankers. Outright or complete losses are few, according to the firms surveyed, probably because the trade terms usually fit the crop financed and the farmer's repayment potential. The risk of loss also is minimized because manufacturers service accounts near their plants, and therefore can follow the accounts closely. Finally, manufacturers keep losses fairly low through their credit investigations.

More of the fertilizer sold in District states could be financed with bank credit to farmers, according to data from the survey. Some farmers actually would save money by using bank credit. Nevertheless, a further major shift from trade credit to bank credit is unlikely, since manufacturers do not change their credit policies frequently or dramatically. Most of the firms responding in the survey said they had followed their current credit policies for more than five years. Presumably they will continue to give their customers open-book credit freely. Moreover, in the last five years manufacturers have advanced trade credit direct to more farmers, partly because farms have become fewer and larger in their trade areas. Some firms said their credit sales direct to farmers will grow because farmers need more working capital and larger advances, which they will seek from fertilizer plants. Since most firms making sales directly to farmers indicate that their present policies will continue, a further rise in such merchant credit is likely. Sales through agents and distributors probably will decline.

Finally, fertilizer manufacturers give little indication of tightening their credit terms. Half of the reporters said they planned little change in their credit policy governing future sales; the remaining reporters were about evenly divided as to loosening or tightening their trade credit policies. Thus, farmers wishing to obtain working capital from the fertilizer industry may find it readily available in the future. Meanwhile some firms in the industry probably will ask banks for more financing for carrying their larger receivables through the peak season. Bankers no doubt will step into that credit breach.

BEETLE

(Continued from page 1)

ed valuable as a scenic attraction in northern Utah's primitive areas.

Control measures also are well under way on the Wasatch and Uintah forests in Utah and southern Wyoming. Floyd Iverson, regional forester, says about \$1,250,000 will be expended in control programs running through 1961 to control bark beetles.

Largest control project currently under way is in the Mountain View, Wyo., area where 60,000 lodgepole pines will be treated.

FIRE ANT

(Continued from page 1)

2 lb. of actual material to the acre. Much educational work was done and every effort was made through all media available—radio, TV, and newspaper—to keep the people informed. Precautions deemed necessary were broadcast and appeared in the local papers. The first application, made sometime in May, 1957, was highly successful in killing out the fire ants.

Surveying for fire ant infestation continued. Fringe infestations were found, making it necessary to treat an additional 7,000 acres in 1958. Other points of new infestation, all small and apparently new colonies, have been found since and a new treatment is now underway. This follow-up is essential if the species is to be eradicated from Arkansas.

These treatments have provided

opportunity to observe the effects of large-scale applications on insects and related forms of life. In February and April, 1958, trash samples were taken from 13 locations in the original treatment area and a comparable 13 samples from locations in an untreated area. A study of the samples indicated that there were fewer insects and related forms of life in the treated than in the untreated area. The figures were 159 and 205, respectively.

Prior work had indicated that such treatments would be effective against ticks. In April, 1958, counts were made of ticks on dogs in the areas treated in 1957 and 1958. A similar study was made in 1959, exactly a year later. The results are shown in the table.

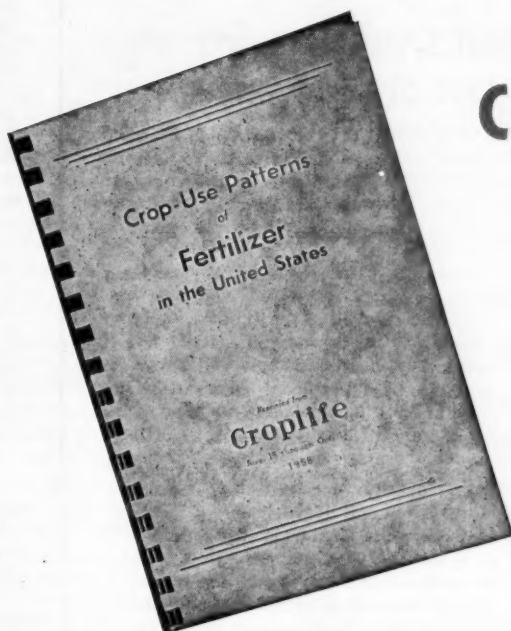
Mosquito control resulting from the treatment was reported for the entire season but no specific data were collected. Other pests, such as crawfish in lawns, were said to be controlled.

Earthworms were killed in unprotected worm beds.

Bee hives that were completely covered suffered very little damage. Hives only partially covered suffered loss of active bees from granules catching onto the drop board. Bees were also killed if they used water contaminated by the treatment. If fresh water was provided, this didn't happen.

Some objection was raised to the treatment and claims of injury were presented. Many of the claims could not be related logically to the treatments. It is evident that the economic benefits associated with treatment far outweigh any short-term detrimental effects that may have occurred.

You'll get a better understanding of the fertilizer market from this valuable new book



Crop-Use Patterns of Fertilizer

in the United States

by

J. R. ADAMS L. B. NELSON D. B. IBACH
U.S. DEPARTMENT OF AGRICULTURE

This significant report was compiled by the U.S. Department of Agriculture after thorough studies of fertilizer use in the United States. Crop-Use Patterns covers questions which, until now, have not been adequately answered. Crop-Use Patterns is based on information gathered from every fifth farm surveyed in the most recent U.S. Census . . . providing a broad base of national information.

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A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Midwestern states.

Will Seaway Open Door to Russian Imports Of Potash in U.S. Agricultural Markets?

DOMESTIC POTASH producers are keeping a wary eye on the possibility of quantities of Russian potash being brought into the U.S. market. So far, apparently nothing but talk has developed despite claims that a shipload of the material has already entered the Great Lakes region via the St. Lawrence Seaway. Industry leaders say they have investigated the whereabouts of such a ship and cargo, but have decided it must have been a sort of phantom.

Still the idea persists that Russian potash may in fact be on the market soon. A midwest importer claims to have made a deal which would make quite a splash in the marketing picture in the U.S., but industry spokesmen have expressed doubt that the appearance of potash from Russia is imminent.

According to these industry leaders, the introduction of Russian potash at this time would be somewhat on the foolish side, since there is presently an over-abundant domestic supply on hand. There is some speculation, however, about the motives involved in such imports. Is Russia intending to make some money, capitalistic fashion? Does it hope to disrupt the U.S. potash industry which has a considerable bearing on military production in time of war? Or, does it simply expect to do some "dumping" of potash at prices below competitive rates now quoted in this country?

Potash tradesmen and many others in the fertilizer industry will remember the dumping hassle that developed back in 1952 at which time potash from communistic East Germany was being brought into the U.S. in considerable quantities. A congressional hearing brought a ruling that dumping had occurred not only from East Germany, but also from France. Such a situation is not the case today, but the specter of its recurrence is not a thing to be ignored.

Potash imported by the Communists would come directly from Russia itself, not from East Germany, it is said. The East Germans have all the market they can handle at the present time and are not exporting in our direction.

With the opening of the St. Lawrence Seaway, however, the ease of bringing quantities of potash into the middle of the country by low-cost water transportation adds a new dimension to the picture. Formerly, it was necessary to unload at an Eastern port, then reship the cargo by rail to inland points for distribution. Thus the Seaway eliminates a significant added cost.

Russian potash, mined back of the Urals and moved by rail to a Baltic port, offers a very attractive transportation situation to the Communists, but one must remember that their actions are not motivated necessarily by economics. If they really wanted to get potash to the U.S. they could whip together a bunch of "Kulaks," put a bag of material on the back of each and start them trudging toward our mainland. The cost of any project in their minds is secondary to the political or ideological aspects of it, and it is certainly true that any dumping on our market is not done because of affection for business enterprise in the U.S.

Industry spokesmen point out that conversations with some of the larger buyers of potash in the U.S. indicate that the latter have no interest in purchasing any raw materials coming from Russia. "They won't touch it even if the quality is the same or better," one industry leader reported.

However, the quality of imported Russian potash is not better than that presently offered on the U.S. market by domestic producers, according to observers who have looked into the situation. Russian potash tests no better than our own, and

in some cases is downright inferior.

It is not the quality of the product that would make or break American users, as we see it. Of considerable more importance would be the uncertainty of supply during the peak season when potash is needed quickly for immediate use. So far as anyone knows, there would be no adequate storage facilities for imported Russian goods which places too great a strain on transportation during the months of heavy demand. Domestic suppliers schedule deliveries far ahead so the potash will be in the hands of users at the time it is needed . . . a feat difficult to achieve from points half way around the world.

Whether or not the import situation develops to a troublesome point remains to be seen, but the domestic potash producers are keeping a watchful eye on the St. Lawrence and Great Lakes ports for signs of Russian goods.

Aerial Operators Express List of Grievances

AIRPLANE SPRAYERS AND DUSTERS have numerous problems and hazards to face in their daily activities, as even a casual observer may see. Aside from risks of life and limb involved in flying low and slow, the aerial operator has other worries with which to contend.

In a recent talk before a group of California entomologists, Wanda Branstetter, executive secretary of the Agricultural Aircraft Assn., pointed up some conditions which she said should be altered. Among these were matters which might well be noted by the pesticidal chemical trade. Her comments hit particularly at inaccurate recommendations for insect control, which she said are sometimes made by insecticide salesmen.

Mrs. Branstetter declared that her organization favors the licensing of all insecticide salesmen in California, but the industry, of course, does not see eye to eye on this proposition. The trade feels that this type of regulation of salesmen is unnecessary and that such a move would be just one more fetter on an industry already badly legislation-bound.

Yet, some of the accusations tossed out by Mrs. Branstetter seem valid and responsible manufacturers might measure their own operations in the light of what she said. Here are some of the "beefs" she expressed:

That salesmen sometimes recommend applications without consideration of surrounding crops, homes or people.

That they tend to oversell . . . or to recommend a toxicant on the basis of its being an overstocked item rather than for its specific need for the job at hand.

That too many times the person recommends and sells a product for the wrong insect. In one case, she said, a pesticide was recommended which would kill the predator rather than the injurious pest.

Obviously, these are not typical cases, for just about all the chemical salesmen we know are knowledgeable and responsible men with at least some entomological training who would be reluctant to give a flippant recommendation which might fail to control the pest or, worse, to ruin a crop.

Just the same, the fact that instances like the above may occasionally occur paves the way toward eventual legislation and perhaps licensing of pesticide salesmen by the state. The answer lies in every firm making sure that its sales force comprises men who either depend on entomologists to recommend treatment or, if making their own, are completely certain there will be no backfire.



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MEETING MEMOS



Aug. 11-12—Summer Tour of the Ohio Pesticide Institute, at Ohio Agricultural Experiment Station, Wooster, Ohio.

Aug. 18—Alabama Fertilizer Conference, Horticulture Substation, Cullman, Ala. and Tennessee Valley Substation, Belle Mina, Ala.

Aug. 19—Alabama Fertilizer Conference, Tennessee Valley Authority, Wilson Dam, Ala. and Upper Coastal Plain Substation, Winfield, Ala.

Aug. 25—Fertilizer industry tour, Miami County, Ohio, NPFI sponsored.

Sept. 3-4—Fertilizer Salesmen's School, North Carolina State College, Raleigh, N.C.

Sept. 10—New pesticide review for Central California, sponsored by Western Agricultural Chemicals Assn., Fresno Fairgrounds, Fresno, Cal.

Nov. 4-5—Fifth Annual Oklahoma Fertilizer Dealers and Crops and Soils Conference, Stillwater, Okla.

Dec. 2-3—Annual Missouri Fertilizer Conference, Columbia, Mo.

Dec. 10-11—Annual Arkansas Plant Food Conference, Little Rock, Ark.

Jan. 5-6—Annual Texas Fertilizer Conference, College Station, Texas.

Jan. 14-16—10th Annual Convention of the Agricultural Aircraft Assn., El Mirador Hotel, Palm Springs, Cal.

Meeting Memos listed above are being listed in this department this week for the first time.

July 29—Annual Kentucky Fertilizer Conference, Guilford Theater, University of Kentucky campus, Lexington, Ky.

July 31—Agronomy Field Day, University of California, Davis, Cal.

Aug. 3-7—Gordon Research Conference on biochemistry in agriculture, Kimball Union Academy, Meriden, N.H.

Aug. 12-13 — Northeast Fertilizer Safety School, Cornell University, Ithaca, N.Y.

Aug. 18-19—Midwest Fertilizer Safety School, National Safety Council Headquarters, Chicago, Ill.

Aug. 18-22—Annual Convention of the Canadian Fertilizer Assn., Bigwin Inn, Lake of Bays, Ontario.

Aug. 26-28—Soil Conservation Society of America, 14th Annual Meeting, Rapid City, S.D.

Aug. 30-Sept. 3—American Institute of Biological Sciences annual meeting, Pennsylvania State University, University Park, Pa.

Sept. 24-25 — Annual North-Eastern Fertilizer Conference, NPFI, Biltmore Hotel, New York, N.Y.

Sept. 30-Oct. 1—Fourth Southeastern Fertilizer Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

Oct. 13-14—Western Agricultural Chemicals Assn., fall meeting, Villa Motel, San Mateo, Cal., O. O. Barnard, executive secretary.

Oct. 14-16—Pacific Northwest Plant Food Assn. Annual Convention, Chinook Hotel, Yakima, Wash.

Oct. 21-23 — National Agricultural Chemicals Assn., 26th annual meeting, French Lick-Sheraton Hotel, French Lick, Ind., Lea S. Hitchner, executive secretary.

Oct. 27—Seventh Annual Grassland Farming Conference, Extension

CALENDAR FOR 1959-60

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